



SEQUENCE LISTING

<110> He, Biao
You, Liang
Xu, Zhidong
Jablons, David M.
The Regents of the University of California

<120> Methods for Treating Cancer by Inhibiting Wnt Signaling

<130> 023070-125630US

<140> US 10/678,639

<141> 2003-10-03

<150> US 10/264,825

<151> 2002-10-04

<150> US 60/509,037

<151> 2002-10-04

<150> US 60/491,350

<151> 2003-07-31

<160> 80

<170> PatentIn Ver. 2.1

<210> 1

<211> 370

<212> PRT

<213> Homo sapiens

<220>

<223> human Wingless-type 1 (Wnt-1) peptide sequence #1

<400> 1

Met Gly Leu Trp Ala Leu Leu Pro Gly Trp Val Ser Ala Thr Leu Leu
1 5 10 15

Leu Ala Leu Ala Ala Leu Pro Ala Ala Leu Ala Ala Asn Ser Ser Gly
20 25 30

Arg Trp Trp Gly Ile Val Asn Val Ala Ser Ser Thr Asn Leu Leu Thr
35 40 45

Asp Ser Lys Ser Leu Gln Leu Val Leu Glu Pro Ser Leu Gln Leu Leu
50 55 60

Ser Arg Lys Gln Arg Arg Leu Ile Arg Gln Asn Pro Gly Ile Leu His
65 70 75 80

Ser Val Ser Gly Gly Leu Gln Ser Ala Val Arg Glu Cys Lys Trp Gln
85 90 95

Phe Arg Asn Arg Arg Trp Asn Cys Pro Thr Ala Pro Gly Pro His Leu
100 105 110

Phe Gly Lys Ile Val Asn Arg Gly Cys Arg Glu Thr Ala Phe Ile Phe
115 120 125

Ala Ile Thr Ser Ala Gly Val Thr His Ser Val Ala Arg Ser Cys Ser
 130 135 140
 Glu Gly Ser Ile Glu Ser Cys Thr Cys Asp Tyr Arg Arg Arg Gly Pro
 145 150 155 160
 Gly Gly Pro Asp Trp His Trp Gly Gly Cys Ser Asp Asn Ile Asp Phe
 165 170 175
 Gly Arg Leu Phe Gly Arg Glu Phe Val Asp Ser Gly Glu Lys Gly Arg
 180 185 190
 Asp Leu Arg Phe Leu Met Asn Leu His Asn Asn Glu Ala Gly Arg Thr
 195 200 205
 Thr Val Phe Ser Glu Met Arg Gln Glu Cys Lys Cys His Gly Met Ser
 210 215 220
 Gly Ser Cys Thr Val Arg Thr Cys Trp Met Arg Leu Pro Thr Leu Arg
 225 230 235 240
 Ala Val Gly Asp Val Leu Arg Asp Arg Phe Asp Gly Ala Ser Arg Val
 245 250 255
 Leu Tyr Gly Asn Arg Gly Ser Asn Arg Ala Ser Arg Ala Glu Leu Leu
 260 265 270
 Arg Leu Glu Pro Glu Asp Pro Ala His Lys Pro Pro Ser Pro His Asp
 275 280 285
 Leu Val Tyr Phe Glu Lys Ser Pro Asn Phe Cys Thr Tyr Ser Gly Arg
 290 295 300
 Leu Gly Thr Ala Gly Thr Ala Gly Arg Ala Cys Asn Ser Ser Ser Pro
 305 310 315 320
 Ala Leu Asp Gly Cys Glu Leu Leu Cys Cys Gly Arg Gly His Arg Thr
 325 330 335
 Arg Thr Gln Arg Val Thr Glu Arg Cys Asn Cys Thr Phe His Trp Cys
 340 345 350
 Cys His Val Ser Cys Arg Asn Cys Thr His Thr Arg Val Leu His Glu
 355 360 365
 Cys Leu
 370

<210> 2
 <211> 15
 <212> PRT
 <213> Homo sapiens

 <220>
 <223> human Wingless-type 1 (Wnt-1) peptide sequence #2

 <400> 2
 Asn Val Ala Ser Ser Thr Asn Leu Leu Thr Asp Ser Lys Ser Cys
 1 5 10 15

<210> 3
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 1 (Wnt-1) peptide sequence #3

<400> 3
Ser Ala Gly Val Thr His Ser Val Ala Arg Ser Cys
1 5 10

<210> 4
<211> 13
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 1 (Wnt-1) peptide sequence #4

<400> 4
His Asn Asn Glu Ala Gly Arg Thr Thr Val Phe Ser Cys
1 5 10

<210> 5
<211> 14
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 1 (Wnt-1) peptide sequence #5

<400> 5
Leu Glu Pro Glu Asp Pro Ala His Lys Pro Pro Ser Pro Cys
1 5 10

<210> 6
<211> 23
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 1 (Wnt-1) peptide sequence #6

<400> 6
Asp Gly Cys Glu Leu Leu Cys Cys Gly Arg Gly His Arg Thr Arg Thr
1 5 10 15

Gln Arg Val Thr Glu Arg Cys
20

<210> 7
<211> 17
<212> PRT
<213> Homo sapiens

<220>
 <223> human Wingless-type 1 (Wnt-1) peptide sequence #7

<400> 7
 His Val Ser Cys Arg Asn Cys Thr His Thr Arg Val Leu His Glu Cys
 1 5 10 15

Leu

<210> 8
 <211> 360
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wingless-type 2 (Wnt-2) peptide sequence #1

<400> 8
 Met Asn Ala Pro Leu Gly Gly Ile Trp Leu Trp Leu Pro Leu Leu Leu
 1 5 10 15

Thr Trp Leu Thr Pro Glu Val Asn Ser Ser Trp Trp Tyr Met Arg Ala
 20 25 30

Thr Gly Gly Ser Ser Arg Val Met Cys Asp Asn Val Pro Gly Leu Val
 35 40 45

Ser Ser Gln Arg Gln Leu Cys His Arg His Pro Asp Val Met Arg Ala
 50 55 60

Ile Ser Gln Gly Val Ala Glu Trp Thr Ala Glu Cys Gln His Gln Phe
 65 70 75 80

Arg Gln His Arg Trp Asn Cys Asn Thr Leu Asp Arg Asp His Ser Leu
 85 90 95

Phe Gly Arg Val Leu Leu Arg Ser Ser Arg Glu Ser Ala Phe Val Tyr
 100 105 110

Ala Ile Ser Ser Ala Gly Val Val Phe Ala Ile Thr Arg Ala Cys Ser
 115 120 125

Gln Gly Glu Val Lys Ser Cys Ser Cys Asp Pro Lys Lys Met Gly Ser
 130 135 140

Ala Lys Asp Ser Lys Gly Ile Phe Asp Trp Gly Gly Cys Ser Asp Asn
 145 150 155 160

Ile Asp Tyr Gly Ile Lys Phe Ala Arg Ala Phe Val Asp Ala Lys Glu
 165 170 175

Arg Lys Gly Lys Asp Ala Arg Ala Leu Met Asn Leu His Asn Asn Arg
 180 185 190

Ala Gly Arg Lys Ala Val Lys Arg Phe Leu Lys Gln Glu Cys Lys Cys
 195 200 205

His Gly Val Ser Gly Ser Cys Thr Leu Arg Thr Cys Trp Leu Ala Met
 210 215 220

Ala Asp Phe Arg Lys Thr Gly Asp Tyr Leu Trp Arg Lys Tyr Asn Gly
225 230 235 240

Ala Ile Gln Val Val Met Asn Gln Asp Gly Thr Gly Phe Thr Val Ala
245 250 255

Asn Glu Arg Phe Lys Lys Pro Thr Lys Asn Asp Leu Val Tyr Phe Glu
260 265 270

Asn Ser Pro Asp Tyr Cys Ile Arg Asp Arg Glu Ala Gly Ser Leu Gly
275 280 285

Thr Ala Gly Arg Val Cys Asn Leu Thr Ser Arg Gly Met Asp Ser Cys
290 295 300

Glu Val Met Cys Cys Gly Arg Gly Tyr Asp Thr Ser His Val Thr Arg
305 310 315 320

Met Thr Lys Cys Gly Cys Lys Phe His Trp Cys Cys Ala Val Arg Cys
325 330 335

Gln Asp Cys Leu Glu Ala Leu Asp Val His Thr Cys Lys Ala Pro Lys
340 345 350

Asn Ala Asp Trp Thr Thr Ala Thr
355 360

<210> 9
<211> 15
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 2 (Wnt-2) peptide sequence #2,
amino acids 49-63 of human Wnt-2

<400> 9
Ser Ser Gln Arg Gln Leu Cys His Arg His Pro Asp Val Met Arg
1 5 10 15

<210> 10
<211> 14
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 2 (Wnt-2) peptide sequence #3

<400> 10
Cys Asp Pro Lys Lys Met Gly Ser Ala Lys Asp Ser Lys Gly
1 5 10

<210> 11
<211> 13
<212> PRT
<213> Homo sapiens

```

<220>
<223> human Wingless-type 2 (Wnt-2) peptide sequence #4

<400> 11
Val Asp Ala Lys Glu Arg Lys Gly Lys Asp Ala Arg Cys
  1             5             10

<210> 12
<211> 18
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 2 (Wnt-2) peptide sequence #5

<400> 12
Asp Val His Thr Cys Lys Ala Pro Lys Asn Ala Asp Trp Thr Thr Ala
  1             5             10             15

Thr Cys

<210> 13
<211> 355
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 3 (Wnt-3) peptide sequence #1

<400> 13
Met Glu Pro His Leu Leu Gly Leu Leu Leu Gly Leu Leu Leu Gly Gly
  1             5             10             15

Thr Arg Val Leu Ala Gly Tyr Pro Ile Trp Trp Ser Leu Ala Leu Gly
      20             25             30

Gln Gln Tyr Thr Ser Leu Gly Ser Gln Pro Leu Leu Cys Gly Ser Ile
      35             40             45

Pro Gly Leu Val Pro Lys Gln Leu Arg Phe Cys Arg Asn Tyr Ile Glu
      50             55             60

Ile Met Pro Ser Val Ala Glu Gly Val Lys Leu Gly Ile Gln Glu Cys
      65             70             75             80

Gln His Gln Phe Arg Gly Arg Arg Trp Asn Cys Thr Thr Ile Asp Asp
      85             90             95

Ser Leu Ala Ile Phe Gly Pro Val Leu Asp Lys Ala Thr Arg Glu Ser
      100            105            110

Ala Phe Val His Ala Ile Ala Ser Ala Gly Val Ala Phe Ala Val Thr
      115            120            125

Arg Ser Cys Ala Glu Gly Thr Ser Thr Ile Cys Gly Cys Asp Ser His
      130            135            140

His Lys Gly Pro Pro Gly Glu Gly Trp Lys Trp Gly Gly Cys Ser Glu
      145            150            155            160

```

Asp Ala Asp Phe Gly Val Leu Val Ser Arg Glu Phe Ala Asp Ala Arg
 165 170 175
 Glu Asn Arg Pro Asp Ala Arg Ser Ala Met Asn Lys His Asn Asn Glu
 180 185 190
 Ala Gly Arg Thr Thr Ile Leu Asp His Met His Leu Lys Cys Lys Cys
 195 200 205
 His Gly Leu Ser Gly Ser Cys Glu Val Lys Thr Cys Trp Trp Ala Gln
 210 215 220
 Pro Asp Phe Arg Ala Ile Gly Asp Phe Leu Lys Asp Lys Tyr Asp Ser
 225 230 235 240
 Ala Ser Glu Met Val Val Glu Lys His Arg Glu Ser Arg Gly Trp Val
 245 250 255
 Glu Thr Leu Arg Ala Lys Tyr Ser Leu Phe Lys Pro Pro Thr Glu Arg
 260 265 270
 Asp Leu Val Tyr Tyr Glu Asn Ser Pro Asn Phe Cys Glu Pro Asn Pro
 275 280 285
 Glu Thr Gly Ser Phe Gly Thr Arg Asp Arg Thr Cys Asn Val Thr Ser
 290 295 300
 His Gly Ile Asp Gly Cys Asp Leu Leu Cys Cys Gly Arg Gly His Asn
 305 310 315 320
 Thr Arg Thr Glu Lys Arg Lys Glu Lys Cys His Cys Ile Phe His Trp
 325 330 335
 Cys Cys Tyr Val Ser Cys Gln Glu Cys Ile Arg Ile Tyr Asp Val His
 340 345 350
 Thr Cys Lys
 355

<210> 14
 <211> 352
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wingless-type 3A (Wnt-3A) peptide sequence
 #1

<400> 14
 Met Ala Pro Leu Gly Tyr Phe Leu Leu Leu Cys Ser Leu Lys Gln Ala
 1 5 10 15
 Leu Gly Ser Tyr Pro Ile Trp Trp Ser Leu Ala Val Gly Pro Gln Tyr
 20 25 30
 Ser Ser Leu Gly Ser Gln Pro Ile Leu Cys Ala Ser Ile Pro Gly Leu
 35 40 45
 Val Pro Lys Gln Leu Arg Phe Cys Arg Asn Tyr Val Glu Ile Met Pro
 50 55 60

Ser Val Ala Glu Gly Ile Lys Ile Gly Ile Gln Glu Cys Gln His Gln
 65 70 75 80
 Phe Arg Gly Arg Arg Trp Asn Cys Thr Thr Val His Asp Ser Leu Ala
 85 90 95
 Ile Phe Gly Pro Val Leu Asp Lys Ala Thr Arg Glu Ser Ala Phe Val
 100 105 110
 His Ala Ile Ala Ser Ala Gly Val Ala Phe Ala Val Thr Arg Ser Cys
 115 120 125
 Ala Glu Gly Thr Ala Ala Ile Cys Gly Cys Ser Ser Arg His Gln Gly
 130 135 140
 Ser Pro Gly Lys Gly Trp Lys Trp Gly Gly Cys Ser Glu Asp Ile Glu
 145 150 155 160
 Phe Gly Gly Met Val Ser Arg Glu Phe Ala Asp Ala Arg Glu Asn Arg
 165 170 175
 Pro Asp Ala Arg Ser Ala Met Asn Arg His Asn Asn Glu Ala Gly Arg
 180 185 190
 Gln Ala Ile Ala Ser His Met His Leu Lys Cys Lys Cys His Gly Leu
 195 200 205
 Ser Gly Ser Cys Glu Val Lys Thr Cys Trp Trp Ser Gln Pro Asp Phe
 210 215 220
 Arg Ala Ile Gly Asp Phe Leu Lys Asp Lys Tyr Asp Ser Ala Ser Glu
 225 230 235 240
 Met Val Val Glu Lys His Arg Glu Ser Arg Gly Trp Val Glu Thr Leu
 245 250 255
 Arg Pro Arg Tyr Thr Tyr Phe Lys Val Pro Thr Glu Arg Asp Leu Val
 260 265 270
 Tyr Tyr Glu Ala Ser Pro Asn Phe Cys Glu Pro Asn Pro Glu Thr Gly
 275 280 285
 Ser Phe Gly Thr Arg Asp Arg Thr Cys Asn Val Ser Ser His Gly Ile
 290 295 300
 Asp Gly Cys Asp Leu Leu Cys Cys Gly Arg Gly His Asn Ala Arg Ala
 305 310 315 320
 Glu Arg Arg Arg Glu Lys Cys Arg Cys Val Phe His Trp Cys Cys Tyr
 325 330 335
 Val Ser Cys Gln Glu Cys Thr Arg Val Tyr Asp Val His Thr Cys Lys
 340 345 350

 <210> 15
 <211> 351
 <212> PRT
 <213> Homo sapiens

<220>

<223> human Wingless-type 4 (Wnt-4) peptide sequence

<400> 15

Met Ser Pro Arg Ser Cys Leu Arg Ser Leu Arg Leu Leu Val Phe Ala
1 5 10 15

Val Phe Ser Ala Ala Ala Ser Asn Trp Leu Tyr Leu Ala Lys Leu Ser
20 25 30

Ser Val Gly Ser Ile Ser Glu Glu Glu Thr Cys Glu Lys Leu Lys Gly
35 40 45

Leu Ile Gln Arg Gln Val Gln Met Cys Lys Arg Asn Leu Glu Val Met
50 55 60

Asp Ser Val Arg Arg Gly Ala Gln Leu Ala Ile Glu Glu Cys Gln Tyr
65 70 75 80

Gln Phe Arg Asn Arg Arg Trp Asn Cys Ser Thr Leu Asp Ser Leu Pro
85 90 95

Val Phe Gly Lys Val Val Thr Gln Gly Thr Arg Glu Ala Ala Phe Val
100 105 110

Tyr Ala Ile Ser Ser Ala Gly Val Ala Phe Ala Val Thr Arg Ala Cys
115 120 125

Ser Ser Gly Glu Leu Glu Lys Cys Gly Cys Asp Arg Thr Val His Gly
130 135 140

Val Ser Pro Gln Gly Phe Gln Trp Ser Gly Cys Ser Asp Asn Ile Ala
145 150 155 160

Tyr Gly Val Ala Phe Ser Gln Ser Phe Val Asp Val Arg Glu Arg Ser
165 170 175

Lys Gly Ala Ser Ser Ser Arg Ala Leu Met Asn Leu His Asn Asn Glu
180 185 190

Ala Gly Arg Lys Ala Ile Leu Thr His Met Arg Val Glu Cys Lys Cys
195 200 205

His Gly Val Ser Gly Ser Cys Glu Val Lys Thr Cys Trp Arg Ala Val
210 215 220

Pro Pro Phe Arg Gln Val Gly His Ala Leu Lys Glu Lys Phe Asp Gly
225 230 235 240

Ala Thr Glu Val Glu Pro Arg Arg Val Gly Ser Ser Arg Ala Leu Val
245 250 255

Pro Arg Asn Ala Gln Phe Lys Pro His Thr Asp Glu Asp Leu Val Tyr
260 265 270

Leu Glu Pro Ser Pro Asp Phe Cys Glu Gln Asp Met Arg Ser Gly Val
275 280 285

Leu Gly Thr Arg Gly Arg Thr Cys Asn Lys Thr Ser Lys Ala Ile Asp
290 295 300

Gly Cys Glu Leu Leu Cys Cys Gly Arg Gly Phe His Thr Ala Gln Val
 305 310 315 320

Glu Leu Ala Glu Arg Cys Ser Cys Lys Phe His Trp Cys Cys Phe Val
 325 330 335

Lys Cys Arg Gln Cys Gln Arg Leu Val Glu Leu His Thr Cys Arg
 340 345 350

<210> 16
 <211> 365
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wingless-type 5A (Wnt-5A) peptide sequence

<400> 16
 Met Ala Gly Ser Ala Met Ser Ser Lys Phe Phe Leu Val Ala Leu Ala
 1 5 10 15

Ile Phe Phe Ser Phe Ala Gln Val Val Ile Glu Ala Asn Ser Trp Trp
 20 25 30

Ser Leu Gly Met Asn Asn Pro Val Gln Met Ser Glu Val Tyr Ile Ile
 35 40 45

Gly Ala Gln Pro Leu Cys Ser Gln Leu Ala Gly Leu Ser Gln Gly Gln
 50 55 60

Lys Lys Leu Cys His Leu Tyr Gln Asp His Met Gln Tyr Ile Gly Glu
 65 70 75 80

Gly Ala Lys Thr Gly Ile Lys Glu Cys Gln Tyr Gln Phe Arg His Arg
 85 90 95

Arg Trp Asn Cys Ser Thr Val Asp Asn Thr Ser Val Phe Gly Arg Val
 100 105 110

Met Gln Ile Gly Ser Arg Glu Thr Ala Phe Thr Tyr Ala Val Ser Ala
 115 120 125

Ala Gly Val Val Asn Ala Met Ser Arg Ala Cys Arg Glu Gly Glu Leu
 130 135 140

Ser Thr Cys Gly Cys Ser Arg Ala Ala Arg Pro Lys Asp Leu Pro Arg
 145 150 155 160

Asp Trp Leu Trp Gly Gly Cys Gly Asp Asn Ile Asp Tyr Gly Tyr Arg
 165 170 175

Phe Ala Lys Glu Phe Val Asp Ala Arg Glu Arg Glu Arg Ile His Ala
 180 185 190

Lys Gly Ser Tyr Glu Ser Ala Arg Ile Leu Met Asn Leu His Asn Asn
 195 200 205

Glu Ala Gly Arg Arg Thr Val Tyr Asn Leu Ala Asp Val Ala Cys Lys
 210 215 220

Cys His Gly Val Ser Gly Ser Cys Ser Leu Lys Thr Cys Trp Leu Gln
 225 230 235 240
 Leu Ala Asp Phe Arg Lys Val Gly Asp Ala Leu Lys Glu Lys Tyr Asp
 245 250 255
 Ser Ala Ala Ala Met Arg Leu Asn Ser Arg Gly Lys Leu Val Gln Val
 260 265 270
 Asn Ser Arg Phe Asn Ser Pro Thr Thr Gln Asp Leu Val Tyr Ile Asp
 275 280 285
 Pro Ser Pro Asp Tyr Cys Val Arg Asn Glu Ser Thr Gly Ser Leu Gly
 290 295 300
 Thr Gln Gly Arg Leu Cys Asn Lys Thr Ser Glu Gly Met Asp Gly Cys
 305 310 315 320
 Glu Leu Met Cys Cys Gly Arg Gly Tyr Asp Gln Phe Lys Thr Val Gln
 325 330 335
 Thr Glu Arg Cys His Cys Lys Phe His Trp Cys Cys Tyr Val Lys Cys
 340 345 350
 Lys Lys Cys Thr Glu Ile Val Asp Gln Phe Val Cys Lys
 355 360 365

<210> 17
 <211> 359
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wingless-type 5B (Wnt-5B) peptide sequence

<400> 17
 Met Pro Ser Leu Leu Leu Leu Phe Thr Ala Ala Leu Leu Ser Ser Trp
 1 5 10 15
 Ala Gln Leu Leu Thr Asp Ala Asn Ser Trp Trp Ser Leu Ala Leu Asn
 20 25 30
 Pro Val Gln Arg Pro Glu Met Phe Ile Ile Gly Ala Gln Pro Val Cys
 35 40 45
 Ser Gln Leu Pro Gly Leu Ser Pro Gly Gln Arg Lys Leu Cys Gln Leu
 50 55 60
 Tyr Gln Glu His Met Ala Tyr Ile Gly Glu Gly Ala Lys Thr Gly Ile
 65 70 75 80
 Lys Glu Cys Gln His Gln Phe Arg Gln Arg Arg Trp Asn Cys Ser Thr
 85 90 95
 Ala Asp Asn Ala Ser Val Phe Gly Arg Val Met Gln Ile Gly Ser Arg
 100 105 110
 Glu Thr Ala Phe Thr His Ala Val Ser Ala Ala Gly Val Val Asn Ala
 115 120 125

Ile Ser Arg Ala Cys Arg Glu Gly Glu Leu Ser Thr Cys Gly Cys Ser
 130 135 140
 Arg Thr Ala Arg Pro Lys Asp Leu Pro Arg Asp Trp Leu Trp Gly Gly
 145 150 155 160
 Cys Gly Asp Asn Val Glu Tyr Gly Tyr Arg Phe Ala Lys Glu Phe Val
 165 170 175
 Asp Ala Arg Glu Arg Glu Lys Asn Phe Ala Lys Gly Ser Glu Glu Gln
 180 185 190
 Gly Arg Val Leu Met Asn Leu Gln Asn Asn Glu Ala Gly Arg Arg Ala
 195 200 205
 Val Tyr Lys Met Ala Asp Val Ala Cys Lys Cys His Gly Val Ser Gly
 210 215 220
 Ser Cys Ser Leu Lys Thr Cys Trp Leu Gln Leu Ala Glu Phe Arg Lys
 225 230 235 240
 Val Gly Asp Arg Leu Lys Glu Lys Tyr Asp Ser Ala Ala Ala Met Arg
 245 250 255
 Val Thr Arg Lys Gly Arg Leu Glu Leu Val Asn Ser Arg Phe Thr Gln
 260 265 270
 Pro Thr Pro Glu Asp Leu Val Tyr Val Asp Pro Ser Pro Asp Tyr Cys
 275 280 285
 Leu Arg Asn Glu Ser Thr Gly Ser Leu Gly Thr Gln Gly Arg Leu Cys
 290 295 300
 Asn Lys Thr Ser Glu Gly Met Asp Gly Cys Glu Leu Met Cys Cys Gly
 305 310 315 320
 Arg Gly Tyr Asn Gln Phe Lys Ser Val Gln Val Glu Arg Cys His Cys
 325 330 335
 Lys Phe His Trp Cys Cys Phe Val Arg Cys Lys Lys Cys Thr Glu Ile
 340 345 350
 Val Asp Gln Tyr Ile Cys Lys
 355

<210> 18

<211> 365

<212> PRT

<213> Homo sapiens

<220>

<223> human Wingless-type 6 (Wnt-6) peptide sequence

<400> 18

Met Leu Pro Pro Leu Pro Ser Arg Leu Gly Leu Leu Leu Leu Leu
 1 5 10 15

Leu Cys Pro Ala His Val Gly Gly Leu Trp Trp Ala Val Gly Ser Pro
 20 25 30

Leu Val Met Asp Pro Thr Ser Ile Cys Arg Lys Ala Arg Arg Leu Ala
 35 40 45

Gly Arg Gln Ala Glu Leu Cys Gln Ala Glu Pro Glu Val Val Ala Glu
 50 55 60

Leu Ala Arg Gly Ala Arg Leu Gly Val Arg Glu Cys Gln Phe Gln Phe
 65 70 75 80

Arg Phe Arg Arg Trp Asn Cys Ser Ser His Ser Lys Ala Phe Gly Arg
 85 90 95

Ile Leu Gln Gln Asp Ile Arg Glu Thr Ala Phe Val Phe Ala Ile Thr
 100 105 110

Ala Ala Gly Ala Ser His Ala Val Thr Gln Ala Cys Ser Met Gly Glu
 115 120 125

Leu Leu Gln Cys Gly Cys Gln Ala Pro Arg Gly Arg Ala Pro Pro Arg
 130 135 140

Pro Ser Gly Leu Pro Gly Thr Pro Gly Pro Pro Gly Pro Ala Gly Ser
 145 150 155 160

Pro Glu Gly Ser Ala Ala Trp Glu Trp Gly Gly Cys Gly Asp Asp Val
 165 170 175

Asp Phe Gly Asp Glu Lys Ser Arg Leu Phe Met Asp Ala Arg His Lys
 180 185 190

Arg Gly Arg Gly Asp Ile Arg Ala Leu Val Gln Leu His Asn Asn Glu
 195 200 205

Ala Gly Arg Leu Ala Val Arg Ser His Thr Arg Thr Glu Cys Lys Cys
 210 215 220

His Gly Leu Ser Gly Ser Cys Ala Leu Arg Thr Cys Trp Gln Lys Leu
 225 230 235 240

Pro Pro Phe Arg Glu Val Gly Ala Arg Leu Leu Glu Arg Phe His Gly
 245 250 255

Ala Ser Arg Val Met Gly Thr Asn Asp Gly Lys Ala Leu Leu Pro Ala
 260 265 270

Val Arg Thr Leu Lys Pro Pro Gly Arg Ala Asp Leu Leu Tyr Ala Ala
 275 280 285

Asp Ser Pro Asp Phe Cys Ala Pro Asn Arg Arg Thr Gly Ser Pro Gly
 290 295 300

Thr Arg Gly Arg Ala Cys Asn Ser Ser Ala Pro Asp Leu Ser Gly Cys
 305 310 315 320

Asp Leu Leu Cys Cys Gly Arg Gly His Arg Gln Glu Ser Val Gln Leu
 325 330 335

Glu Glu Asn Cys Leu Cys Arg Phe His Trp Cys Cys Val Val Gln Cys
340 345 350

His Arg Cys Arg Val Arg Lys Glu Leu Ser Leu Cys Leu
355 360 365

<210> 19
<211> 349
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 7A (Wnt-7A) peptide sequence

<400> 19
Met Asn Arg Lys Ala Leu Arg Cys Leu Gly His Leu Phe Leu Ser Leu
1 5 10 15

Gly Met Val Cys Leu Arg Ile Gly Gly Phe Ser Ser Val Val Ala Leu
20 25 30

Gly Ala Thr Ile Ile Cys Asn Lys Ile Pro Gly Leu Ala Pro Arg Gln
35 40 45

Arg Ala Ile Cys Gln Ser Arg Pro Asp Ala Ile Ile Val Ile Gly Glu
50 55 60

Gly Ser Gln Met Gly Leu Asp Glu Cys Gln Phe Gln Phe Arg Asn Gly
65 70 75 80

Arg Trp Asn Cys Ser Ala Leu Gly Glu Arg Thr Val Phe Gly Lys Glu
85 90 95

Leu Lys Val Gly Ser Arg Asp Gly Ala Phe Thr Tyr Ala Ile Ile Ala
100 105 110

Ala Gly Val Ala His Ala Ile Thr Ala Ala Cys Thr His Gly Asn Leu
115 120 125

Ser Asp Cys Gly Cys Asp Lys Glu Lys Gln Gly Gln Tyr His Arg Asp
130 135 140

Glu Gly Trp Lys Trp Gly Gly Cys Ser Ala Asp Ile Arg Tyr Gly Ile
145 150 155 160

Gly Phe Ala Lys Val Phe Val Asp Ala Arg Glu Ile Lys Gln Asn Ala
165 170 175

Arg Thr Leu Met Asn Leu His Asn Asn Glu Ala Gly Arg Lys Ile Leu
180 185 190

Glu Glu Asn Met Lys Leu Glu Cys Lys Cys His Gly Val Ser Gly Ser
195 200 205

Cys Thr Thr Lys Thr Cys Trp Thr Thr Leu Pro Gln Phe Arg Glu Leu
210 215 220

Gly Tyr Val Leu Lys Asp Lys Tyr Asn Glu Ala Val His Val Glu Pro
225 230 235 240

Val Arg Ala Ser Arg Asn Lys Arg Pro Thr Phe Leu Lys Ile Lys Lys
245 250 255

Pro Leu Ser Tyr Arg Lys Pro Met Asp Thr Asp Leu Val Tyr Ile Glu
260 265 270

Lys Ser Pro Asn Tyr Cys Glu Glu Asp Pro Val Thr Gly Ser Val Gly
275 280 285

Thr Gln Gly Arg Ala Cys Asn Lys Thr Ala Pro Gln Ala Ser Gly Cys
290 295 300

Asp Leu Met Cys Cys Gly Arg Gly Tyr Asn Thr His Gln Tyr Ala Arg
305 310 315 320

Val Trp Gln Cys Asn Cys Lys Phe His Trp Cys Cys Tyr Val Lys Cys
325 330 335

Asn Thr Cys Ser Glu Arg Thr Glu Met Tyr Thr Cys Lys
340 345

<210> 20
<211> 349
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 7B (Wnt-7B) peptide sequence

<400> 20
Met His Arg Asn Phe Arg Lys Trp Ile Phe Tyr Val Phe Leu Cys Phe
1 5 10 15

Gly Val Leu Tyr Val Lys Leu Gly Ala Leu Ser Ser Val Val Ala Leu
20 25 30

Gly Ala Asn Ile Ile Cys Asn Lys Ile Pro Gly Leu Ala Pro Arg Gln
35 40 45

Arg Ala Ile Cys Gln Ser Arg Pro Asp Ala Ile Ile Val Ile Gly Glu
50 55 60

Gly Ala Gln Met Gly Ile Asn Glu Cys Gln Tyr Gln Phe Arg Phe Gly
65 70 75 80

Arg Trp Asn Cys Ser Ala Leu Gly Glu Lys Thr Val Phe Gly Gln Glu
85 90 95

Leu Arg Val Gly Ser Arg Glu Ala Ala Phe Thr Tyr Ala Ile Thr Ala
100 105 110

Ala Gly Val Ala His Ala Val Thr Ala Ala Cys Ser Gln Gly Asn Leu
115 120 125

Ser Asn Cys Gly Cys Asp Arg Glu Lys Gln Gly Tyr Tyr Asn Gln Ala
130 135 140

Glu Gly Trp Lys Trp Gly Gly Cys Ser Ala Asp Val Arg Tyr Gly Ile
145 150 155 160

Asp Phe Ser Arg Arg Phe Val Asp Ala Arg Glu Ile Lys Lys Asn Ala
 165 170 175
 Arg Arg Leu Met Asn Leu His Asn Asn Glu Ala Gly Arg Lys Val Leu
 180 185 190
 Glu Asp Arg Met Gln Leu Glu Cys Lys Cys His Gly Val Ser Gly Ser
 195 200 205
 Cys Thr Thr Lys Thr Cys Trp Thr Thr Leu Pro Lys Phe Arg Glu Val
 210 215 220
 Gly His Leu Leu Lys Glu Lys Tyr Asn Ala Ala Val Gln Val Glu Val
 225 230 235 240
 Val Arg Ala Ser Arg Leu Arg Gln Pro Thr Phe Leu Arg Ile Lys Gln
 245 250 255
 Leu Arg Ser Tyr Gln Lys Pro Met Glu Thr Asp Leu Val Tyr Ile Glu
 260 265 270
 Lys Ser Pro Asn Tyr Cys Glu Glu Asp Ala Ala Thr Gly Ser Val Gly
 275 280 285
 Thr Gln Gly Arg Leu Cys Asn Arg Thr Ser Pro Gly Ala Asp Gly Cys
 290 295 300
 Asp Thr Met Cys Cys Gly Arg Gly Tyr Asn Thr His Gln Tyr Thr Lys
 305 310 315 320
 Val Trp Gln Cys Asn Cys Lys Phe His Trp Cys Cys Phe Val Lys Cys
 325 330 335
 Asn Thr Cys Ser Glu Arg Thr Glu Val Phe Thr Cys Lys
 340 345

<210> 21
 <211> 355
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wingless-type 8A (Wnt-8A) peptide sequence

<400> 21
 Met Gly Asn Leu Phe Met Leu Trp Ala Ala Leu Gly Ile Cys Cys Ala
 1 5 10 15
 Ala Phe Ser Ala Ser Ala Trp Ser Val Asn Asn Phe Leu Ile Thr Gly
 20 25 30
 Pro Lys Ala Tyr Leu Thr Tyr Thr Thr Ser Val Ala Leu Gly Ala Gln
 35 40 45
 Ser Gly Ile Glu Glu Cys Lys Phe Gln Phe Ala Trp Glu Arg Trp Asn
 50 55 60
 Cys Pro Glu Asn Ala Leu Gln Leu Ser Thr His Asn Arg Leu Arg Ser
 65 70 75 80

Ala Thr Arg Glu Thr Ser Phe Ile His Ala Ile Ser Ser Ala Gly Val
 85 90 95
 Met Tyr Ile Ile Thr Lys Asn Cys Ser Met Gly Asp Phe Glu Asn Cys
 100 105 110
 Gly Cys Asp Gly Ser Asn Asn Gly Lys Thr Gly Gly His Gly Trp Ile
 115 120 125
 Trp Gly Gly Cys Ser Asp Asn Val Glu Phe Gly Glu Arg Ile Ser Lys
 130 135 140
 Leu Phe Val Asp Ser Leu Glu Lys Gly Lys Asp Ala Arg Ala Leu Met
 145 150 155 160
 Asn Leu His Asn Asn Arg Ala Gly Arg Leu Ala Val Arg Ala Thr Met
 165 170 175
 Lys Arg Thr Cys Lys Cys His Gly Ile Ser Gly Ser Cys Ser Ile Gln
 180 185 190
 Thr Cys Trp Leu Gln Leu Ala Glu Phe Arg Glu Met Gly Asp Tyr Leu
 195 200 205
 Lys Ala Lys Tyr Asp Gln Ala Leu Lys Ile Glu Met Asp Lys Arg Gln
 210 215 220
 Leu Arg Ala Gly Asn Ser Ala Glu Gly His Trp Val Pro Ala Glu Ala
 225 230 235 240
 Phe Leu Pro Ser Ala Glu Ala Glu Leu Ile Phe Leu Glu Glu Ser Pro
 245 250 255
 Asp Tyr Cys Thr Cys Asn Ser Ser Leu Gly Ile Tyr Gly Thr Glu Gly
 260 265 270
 Arg Glu Cys Leu Gln Asn Ser His Asn Thr Ser Arg Trp Glu Arg Arg
 275 280 285
 Ser Cys Gly Arg Leu Cys Thr Glu Cys Gly Leu Gln Val Glu Glu Arg
 290 295 300
 Lys Thr Glu Val Ile Ser Ser Cys Asn Cys Lys Phe Gln Trp Cys Cys
 305 310 315 320
 Thr Val Lys Cys Asp Gln Cys Arg His Val Val Ser Lys Tyr Tyr Cys
 325 330 335
 Ala Arg Ser Pro Gly Ser Ala Gln Ser Leu Gly Arg Val Trp Phe Gly
 340 345 350
 Val Tyr Ile
 355

<210> 22
 <211> 351
 <212> PRT
 <213> Homo sapiens

<220>

<223> human Wingless-type 8B (Wnt-8B) peptide sequence

<400> 22

```
Met Phe Leu Ser Lys Pro Ser Val Tyr Ile Cys Leu Phe Thr Cys Val
  1             5             10             15

Leu Gln Leu Ser His Ser Trp Ser Val Asn Asn Phe Leu Met Thr Gly
      20             25             30

Pro Lys Ala Tyr Leu Ile Tyr Ser Ser Ser Val Ala Ala Gly Ala Gln
      35             40             45

Ser Gly Ile Glu Glu Cys Lys Tyr Gln Phe Ala Trp Asp Arg Trp Asn
      50             55             60

Cys Pro Glu Arg Ala Leu Gln Leu Ser Ser His Gly Gly Leu Arg Ser
      65             70             75             80

Ala Asn Arg Glu Thr Ala Phe Val His Ala Ile Ser Ser Ala Gly Val
      85             90             95

Met Tyr Thr Leu Thr Arg Asn Cys Ser Leu Gly Asp Phe Asp Asn Cys
      100            105            110

Gly Cys Asp Asp Ser Arg Asn Gly Gln Leu Gly Gly Gln Gly Trp Leu
      115            120            125

Trp Gly Gly Cys Ser Asp Asn Val Gly Phe Gly Glu Ala Ile Ser Lys
      130            135            140

Gln Phe Val Asp Ala Leu Glu Thr Gly Gln Asp Ala Arg Ala Ala Met
      145            150            155            160

Asn Leu His Asn Asn Glu Ala Gly Arg Lys Ala Val Lys Gly Thr Met
      165            170            175

Lys Arg Thr Cys Lys Cys His Gly Val Ser Gly Ser Cys Thr Thr Gln
      180            185            190

Thr Cys Trp Leu Gln Leu Pro Glu Phe Arg Glu Val Gly Ala His Leu
      195            200            205

Lys Glu Lys Tyr His Ala Ala Leu Lys Val Asp Leu Leu Gln Gly Ala
      210            215            220

Gly Asn Ser Ala Ala Ala Arg Gly Ala Ile Ala Asp Thr Phe Arg Ser
      225            230            235            240

Ile Ser Thr Arg Glu Leu Val His Leu Glu Asp Ser Pro Asp Tyr Cys
      245            250            255

Leu Glu Asn Lys Thr Leu Gly Leu Leu Gly Thr Glu Gly Arg Glu Cys
      260            265            270

Leu Arg Arg Gly Arg Ala Leu Gly Arg Trp Glu Leu Arg Ser Cys Arg
      275            280            285

Arg Leu Cys Gly Asp Cys Gly Leu Ala Val Glu Glu Arg Arg Ala Glu
      290            295            300
```

Thr Val Ser Ser Cys Asn Cys Lys Phe His Trp Cys Cys Ala Val Arg
 305 310 315 320

Cys Glu Gln Cys Arg Arg Arg Val Thr Lys Tyr Phe Cys Ser Arg Ala
 325 330 335

Glu Arg Pro Arg Gly Gly Ala Ala His Lys Pro Gly Arg Lys Pro
 340 345 350

<210> 23
 <211> 417
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wntless-type 10A (Wnt-10A) peptide sequence

<400> 23
 Met Gly Ser Ala His Pro Arg Pro Trp Leu Arg Leu Arg Pro Gln Pro
 1 5 10 15

Gln Pro Arg Pro Ala Leu Trp Val Leu Leu Phe Phe Leu Leu Leu Leu
 20 25 30

Ala Ala Ala Met Pro Arg Ser Ala Pro Asn Asp Ile Leu Asp Leu Arg
 35 40 45

Leu Pro Pro Glu Pro Val Leu Asn Ala Asn Thr Val Cys Leu Thr Leu
 50 55 60

Pro Gly Leu Ser Arg Arg Gln Met Glu Val Cys Val Arg His Pro Asp
 65 70 75 80

Val Ala Ala Ser Ala Ile Gln Gly Ile Gln Ile Ala Ile His Glu Cys
 85 90 95

Gln His Gln Phe Arg Asp Gln Arg Trp Asn Cys Ser Ser Leu Glu Thr
 100 105 110

Arg Asn Lys Ile Pro Tyr Glu Ser Pro Ile Phe Ser Arg Gly Phe Arg
 115 120 125

Glu Ser Ala Phe Ala Tyr Ala Ile Ala Ala Ala Gly Val Val His Ala
 130 135 140

Val Ser Asn Ala Cys Ala Leu Gly Lys Leu Lys Ala Cys Gly Cys Asp
 145 150 155 160

Ala Ser Arg Arg Gly Asp Glu Glu Ala Phe Arg Arg Lys Leu His Arg
 165 170 175

Leu Gln Leu Asp Ala Leu Gln Arg Gly Lys Gly Leu Ser His Gly Val
 180 185 190

Pro Glu His Pro Ala Leu Pro Thr Ala Ser Pro Gly Leu Gln Asp Ser
 195 200 205

Trp Glu Trp Gly Gly Cys Ser Pro Asp Met Gly Phe Gly Glu Arg Phe
 210 215 220

Ser Lys Asp Phe Leu Asp Ser Arg Glu Pro His Arg Asp Ile His Ala
 225 230 235 240
 Arg Met Arg Leu His Asn Asn Arg Val Gly Arg Gln Ala Val Met Glu
 245 250 255
 Asn Met Arg Arg Lys Cys Lys Cys His Gly Thr Ser Gly Ser Cys Gln
 260 265 270
 Leu Lys Thr Cys Trp Gln Val Thr Pro Glu Phe Arg Thr Val Gly Ala
 275 280 285
 Leu Leu Arg Ser Arg Phe His Arg Ala Thr Leu Ile Arg Pro His Asn
 290 295 300
 Arg Asn Gly Gly Gln Leu Glu Pro Gly Pro Ala Gly Ala Pro Ser Pro
 305 310 315 320
 Ala Pro Gly Ala Pro Gly Pro Arg Arg Arg Ala Ser Pro Ala Asp Leu
 325 330 335
 Val Tyr Phe Glu Lys Ser Pro Asp Phe Cys Glu Arg Glu Pro Arg Leu
 340 345 350
 Asp Ser Ala Gly Thr Val Gly Arg Leu Cys Asn Lys Ser Ser Ala Gly
 355 360 365
 Ser Asp Gly Cys Gly Ser Met Cys Cys Gly Arg Gly His Asn Ile Leu
 370 375 380
 Arg Gln Thr Arg Ser Glu Arg Cys His Cys Arg Phe His Trp Cys Cys
 385 390 395 400
 Phe Val Val Cys Glu Glu Cys Arg Ile Thr Glu Trp Val Ser Val Cys
 405 410 415

Lys

<210> 24
 <211> 389
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wingless-type 10B (Wnt-10B) peptide sequence

<400> 24
 Met Leu Glu Glu Pro Arg Pro Arg Pro Pro Ser Gly Leu Ala Gly
 1 5 10 15
 Leu Leu Phe Leu Ala Leu Cys Ser Arg Ala Leu Ser Asn Glu Ile Leu
 20 25 30
 Gly Leu Lys Leu Pro Gly Glu Pro Pro Leu Thr Ala Asn Thr Val Cys
 35 40 45
 Leu Thr Leu Ser Gly Leu Ser Lys Arg Gln Leu Gly Leu Cys Leu Arg
 50 55 60

Asn Pro Asp Val Thr Ala Ser Ala Leu Gln Gly Leu His Ile Ala Val
 65 70 75 80
 His Glu Cys Gln His Gln Leu Arg Asp Gln Arg Trp Asn Cys Ser Ala
 85 90 95
 Leu Glu Gly Gly Gly Arg Leu Pro His His Ser Ala Ile Leu Lys Arg
 100 105 110
 Gly Phe Arg Glu Ser Ala Phe Ser Phe Ser Met Leu Ala Ala Gly Val
 115 120 125
 Met His Ala Val Ala Thr Ala Cys Ser Leu Gly Lys Leu Val Ser Cys
 130 135 140
 Gly Cys Gly Trp Lys Gly Ser Gly Glu Gln Asp Arg Leu Arg Ala Lys
 145 150 155 160
 Leu Leu Gln Leu Gln Ala Leu Ser Arg Gly Lys Ser Phe Pro His Ser
 165 170 175
 Leu Pro Ser Pro Gly Pro Gly Ser Ser Pro Ser Pro Gly Pro Gln Asp
 180 185 190
 Thr Trp Glu Trp Gly Gly Cys Asn His Asp Met Asp Phe Gly Glu Lys
 195 200 205
 Phe Ser Arg Asp Phe Leu Asp Ser Arg Glu Ala Pro Arg Asp Ile Gln
 210 215 220
 Ala Arg Met Arg Ile His Asn Asn Arg Val Gly Arg Gln Val Val Thr
 225 230 235 240
 Glu Asn Leu Lys Arg Lys Cys Lys Cys His Gly Thr Ser Gly Ser Cys
 245 250 255
 Gln Phe Lys Thr Cys Trp Arg Ala Ala Pro Glu Phe Arg Ala Val Gly
 260 265 270
 Ala Ala Leu Arg Glu Arg Leu Gly Arg Ala Ile Phe Ile Asp Thr His
 275 280 285
 Asn Arg Asn Ser Gly Ala Phe Gln Pro Arg Leu Arg Pro Arg Arg Leu
 290 295 300
 Ser Gly Glu Leu Val Tyr Phe Glu Lys Ser Pro Asp Phe Cys Glu Arg
 305 310 315 320
 Asp Pro Thr Met Gly Ser Pro Gly Thr Arg Gly Arg Ala Cys Asn Lys
 325 330 335
 Thr Ser Arg Leu Leu Asp Gly Cys Gly Ser Leu Cys Cys Gly Arg Gly
 340 345 350
 His Asn Val Leu Arg Gln Thr Arg Val Glu Arg Cys His Cys Arg Phe
 355 360 365

His Trp Cys Cys Tyr Val Leu Cys Asp Glu Cys Lys Val Thr Glu Trp
 370 375 380

Val Asn Val Cys Lys
 385

<210> 25
 <211> 354
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wingless-type 11 (Wnt-11) peptide sequence

<400> 25
 Met Arg Ala Arg Pro Gln Val Cys Glu Ala Leu Leu Phe Ala Leu Ala
 1 5 10 15
 Leu Gln Thr Gly Val Cys Tyr Gly Ile Lys Trp Leu Ala Leu Ser Lys
 20 25 30
 Thr Pro Ser Ala Leu Ala Leu Asn Gln Thr Gln His Cys Lys Gln Leu
 35 40 45
 Glu Gly Leu Val Ser Ala Gln Val Gln Leu Cys Arg Ser Asn Leu Glu
 50 55 60
 Leu Met His Thr Val Val His Ala Ala Arg Glu Val Met Lys Ala Cys
 65 70 75 80
 Arg Arg Ala Phe Ala Asp Met Arg Trp Asn Cys Ser Ser Ile Glu Leu
 85 90 95
 Ala Pro Asn Tyr Leu Leu Asp Leu Glu Arg Gly Thr Arg Glu Ser Ala
 100 105 110
 Phe Val Tyr Ala Leu Ser Ala Ala Thr Ile Ser His Ala Ile Ala Arg
 115 120 125
 Ala Cys Thr Ser Gly Asp Leu Pro Gly Cys Ser Cys Gly Pro Val Pro
 130 135 140
 Gly Glu Pro Pro Gly Pro Gly Asn Arg Trp Gly Arg Cys Ala Asp Asn
 145 150 155 160
 Leu Ser Tyr Gly Leu Leu Met Gly Ala Lys Phe Ser Asp Ala Pro Met
 165 170 175
 Lys Val Lys Lys Thr Gly Ser Gln Ala Asn Lys Leu Met Arg Leu His
 180 185 190
 Asn Ser Glu Val Gly Arg Gln Ala Leu Arg Ala Ser Leu Glu Met Lys
 195 200 205
 Cys Lys Cys His Gly Val Ser Gly Ser Cys Ser Ile Arg Thr Cys Trp
 210 215 220
 Lys Gly Leu Gln Glu Leu Gln Asp Val Ala Ala Asp Leu Lys Thr Arg
 225 230 235 240

Tyr Leu Ser Ala Thr Lys Val Val His Arg Pro Met Gly Thr Arg Lys
 245 250 255
 His Leu Val Pro Lys Asp Leu Asp Ile Arg Pro Val Lys Asp Trp Glu
 260 265 270
 Leu Val Tyr Leu Gln Ser Ser Pro Asp Phe Cys Met Lys Asn Glu Lys
 275 280 285
 Val Gly Ser His Gly Thr Gln Asp Arg Gln Cys Asn Lys Thr Ser Asn
 290 295 300
 Gly Ser Asp Ser Cys Asp Leu Met Cys Cys Gly Arg Gly Tyr Asn Pro
 305 310 315 320
 Tyr Thr Asp Arg Val Val Glu Arg Cys His Cys Lys Tyr His Trp Cys
 325 330 335
 Cys Tyr Val Thr Cys Arg Arg Cys Glu Arg Thr Val Glu Arg Tyr Val
 340 345 350

Cys Lys

<210> 26
 <211> 389
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Wingless-type 12 (Wnt-12) peptide sequence

<400> 26
 Met Leu Glu Glu Pro Arg Pro Arg Pro Pro Pro Ser Gly Leu Ala Gly
 1 5 10 15
 Leu Leu Phe Leu Ala Leu Cys Ser Arg Ala Leu Ser Asn Glu Ile Leu
 20 25 30
 Gly Leu Lys Leu Pro Gly Glu Pro Pro Leu Thr Ala Asn Thr Val Cys
 35 40 45
 Leu Thr Leu Ser Gly Leu Ser Lys Arg Gln Leu Gly Leu Cys Leu Arg
 50 55 60
 Asn Pro Asp Val Thr Ala Ser Ala Leu Gln Gly Leu His Ile Ala Val
 65 70 75 80
 His Glu Cys Gln His Gln Leu Arg Asp Gln Arg Trp Asn Cys Ser Ala
 85 90 95
 Leu Glu Gly Gly Gly Arg Leu Pro His His Ser Ala Ile Leu Lys Arg
 100 105 110
 Gly Phe Arg Glu Ser Ala Phe Ser Phe Ser Met Leu Ala Ala Gly Val
 115 120 125
 Met His Ala Val Ala Thr Ala Cys Ser Leu Gly Lys Leu Val Ser Cys
 130 135 140

Gly Cys Gly Trp Lys Gly Ser Gly Glu Gln Asp Arg Leu Arg Ala Lys
 145 150 155 160
 Leu Leu Gln Leu Gln Ala Leu Ser Arg Gly Lys Ser Phe Pro His Ser
 165 170 175
 Leu Pro Ser Pro Gly Pro Gly Ser Ser Pro Ser Pro Gly Pro Gln Asp
 180 185 190
 Thr Trp Glu Trp Gly Gly Cys Asn His Asp Met Asp Phe Gly Glu Lys
 195 200 205
 Phe Ser Arg Asp Phe Leu Asp Ser Arg Glu Ala Pro Arg Asp Ile Gln
 210 215 220
 Ala Arg Met Arg Ile His Asn Asn Arg Val Gly Arg Gln Val Val Thr
 225 230 235 240
 Glu Asn Leu Lys Arg Lys Cys Lys Cys His Gly Thr Ser Gly Ser Cys
 245 250 255
 Gln Phe Lys Thr Cys Trp Arg Ala Ala Pro Glu Phe Arg Ala Val Gly
 260 265 270
 Ala Ala Leu Arg Glu Arg Leu Gly Arg Ala Ile Phe Ile Asp Thr His
 275 280 285
 Asn Arg Asn Ser Gly Ala Phe Gln Pro Arg Leu Arg Pro Arg Arg Leu
 290 295 300
 Ser Gly Glu Leu Val Tyr Phe Glu Lys Ser Pro Asp Phe Cys Glu Arg
 305 310 315 320
 Asp Pro Thr Met Gly Ser Pro Gly Thr Arg Gly Arg Ala Cys Asn Lys
 325 330 335
 Thr Ser Arg Leu Leu Asp Gly Cys Gly Ser Leu Cys Cys Gly Arg Gly
 340 345 350
 His Asn Val Leu Arg Gln Thr Arg Val Glu Arg Cys His Cys Arg Phe
 355 360 365
 His Trp Cys Cys Tyr Val Leu Cys Asp Glu Cys Lys Val Thr Glu Trp
 370 375 380
 Val Asn Val Cys Lys
 385

<210> 27

<211> 391

<212> PRT

<213> Homo sapiens

<220>

<223> human Wingless-type 13 (Wnt-13) peptide sequence

<400> 27

Met Leu Arg Pro Gly Gly Ala Glu Glu Ala Ala Gln Leu Pro Leu Arg
 1 5 10 15

Arg Ala Ser Ala Pro Val Pro Val Pro Ser Pro Ala Ala Pro Asp Gly
 20 25 30
 Ser Arg Ala Ser Ala Arg Leu Gly Leu Ala Cys Leu Leu Leu Leu Leu
 35 40 45
 Leu Leu Thr Leu Pro Ala Arg Val Asp Thr Ser Trp Trp Tyr Ile Gly
 50 55 60
 Ala Leu Gly Ala Arg Val Ile Cys Asp Asn Ile Pro Gly Leu Val Ser
 65 70 75 80
 Arg Gln Arg Gln Leu Cys Gln Arg Tyr Pro Asp Ile Met Arg Ser Val
 85 90 95
 Gly Glu Gly Ala Arg Glu Trp Ile Arg Glu Cys Gln His Gln Phe Arg
 100 105 110
 His His Arg Trp Asn Cys Thr Thr Leu Asp Arg Asp His Thr Val Phe
 115 120 125
 Gly Arg Val Met Leu Arg Ser Ser Arg Glu Ala Ala Phe Val Tyr Ala
 130 135 140
 Ile Ser Ser Ala Gly Val Val His Ala Ile Thr Arg Ala Cys Ser Gln
 145 150 155 160
 Gly Glu Leu Ser Val Cys Ser Cys Asp Pro Tyr Thr Arg Gly Arg His
 165 170 175
 His Asp Gln Arg Gly Asp Phe Asp Trp Gly Gly Cys Ser Asp Asn Ile
 180 185 190
 His Tyr Gly Val Arg Phe Ala Lys Ala Phe Val Asp Ala Lys Glu Lys
 195 200 205
 Arg Leu Lys Asp Ala Arg Ala Leu Met Asn Leu His Asn Asn Arg Cys
 210 215 220
 Gly Arg Thr Ala Val Arg Arg Phe Leu Lys Leu Glu Cys Lys Cys His
 225 230 235 240
 Gly Val Ser Gly Ser Cys Thr Leu Arg Thr Cys Trp Arg Ala Leu Ser
 245 250 255
 Asp Phe Arg Arg Thr Gly Asp Tyr Leu Arg Arg Arg Tyr Asp Gly Ala
 260 265 270
 Val Gln Val Met Ala Thr Gln Asp Gly Ala Asn Phe Thr Ala Ala Arg
 275 280 285
 Gln Gly Tyr Arg Arg Ala Thr Arg Thr Asp Leu Val Tyr Phe Asp Asn
 290 295 300
 Ser Pro Asp Tyr Cys Val Leu Asp Lys Ala Ala Gly Ser Leu Gly Thr
 305 310 315 320
 Ala Gly Arg Val Cys Ser Lys Thr Ser Lys Gly Thr Asp Gly Cys Glu
 325 330 335

Ile Met Cys Cys Gly Arg Gly Tyr Asp Thr Thr Arg Val Thr Arg Val
340 345 350

Thr Gln Cys Glu Cys Lys Phe His Trp Cys Cys Ala Val Arg Cys Lys
355 360 365

Glu Cys Arg Asn Thr Val Asp Val His Thr Cys Lys Ala Pro Lys Lys
370 375 380

Ala Glu Trp Leu Asp Gln Thr
385 390

<210> 28
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<223> human Wntless-type 14 (Wnt-14) peptide sequence

<400> 28
Met Leu Asp Gly Ser Pro Leu Ala Arg Trp Leu Ala Ala Ala Phe Gly
1 5 10 15

Leu Thr Leu Leu Leu Ala Ala Leu Arg Pro Ser Ala Ala Tyr Phe Gly
20 25 30

Leu Thr Gly Ser Glu Pro Leu Thr Ile Leu Pro Leu Thr Leu Glu Pro
35 40 45

Glu Ala Ala Ala Gln Ala His Tyr Lys Ala Cys Asp Arg Leu Lys Leu
50 55 60

Glu Arg Lys Gln Arg Arg Met Cys Arg Arg Asp Pro Gly Val Ala Glu
65 70 75 80

Thr Leu Val Glu Ala Val Ser Met Ser Ala Leu Glu Cys Gln Phe Gln
85 90 95

Phe Arg Phe Glu Arg Trp Asn Cys Thr Leu Glu Gly Arg Tyr Arg Ala
100 105 110

Ser Leu Leu Lys Arg Gly Phe Lys Glu Thr Ala Phe Leu Tyr Ala Ile
115 120 125

Ser Ser Ala Gly Leu Thr His Ala Leu Ala Lys Ala Cys Ser Ala Gly
130 135 140

Arg Met Glu Arg Cys Thr Cys Asp Glu Ala Pro Asp Leu Glu Asn Arg
145 150 155 160

Glu Ala Trp Gln Trp Gly Gly Cys Gly Asp Asn Leu Lys Tyr Ser Ser
165 170 175

Lys Phe Val Lys Glu Phe Leu Gly Arg Arg Ser Ser Lys Asp Leu Arg
180 185 190

Ala Arg Val Asp Phe His Asn Asn Leu Val Gly Val Lys Val Ile Lys
195 200 205

Ala Gly Val Glu Thr Thr Cys Lys Cys His Gly Val Ser Gly Ser Cys
210 215 220

Thr Val Arg Thr Cys Trp Arg Gln Leu Ala Pro Phe His Glu Val Gly
225 230 235 240

Lys His Leu Lys His Lys Tyr Glu Thr Ala Leu Lys Val Gly Ser Thr
245 250 255

Thr Asn Glu Ala Ala Gly Glu Ala Gly Ala Ile Ser Pro Pro Arg Gly
260 265 270

Arg Ala Ser Gly Ala Gly Gly Ser Asp Pro Leu Pro Arg Thr Pro Glu
275 280 285

Leu Val His Leu Asp Asp Ser Pro Ser Phe Cys Leu Ala Gly Arg Phe
290 295 300

Ser Pro Gly Thr Ala Gly Arg Arg Cys His Arg Glu Lys Asn Cys Glu
305 310 315 320

Ser Ile Cys Cys Gly Arg Gly His Asn Thr Gln Ser Arg Val Val Thr
325 330 335

Arg Pro Cys Gln Cys Gln Val Arg Trp Cys Cys Tyr Val Glu Cys Arg
340 345 350

Gln Cys Thr Gln Arg Glu Glu Val Tyr Thr Cys Lys Gly
355 360 365

<210> 29
<211> 357
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 15 (Wnt-15) peptide sequence

<400> 29
Met Arg Pro Pro Ala Leu Ala Leu Ala Gly Leu Cys Leu Leu Ala
1 5 10 15

Leu Pro Ala Ala Ala Ala Ser Tyr Phe Gly Leu Thr Gly Arg Glu Val
20 25 30

Leu Thr Pro Phe Pro Gly Leu Gly Thr Ala Ala Ala Pro Ala Gln Gly
35 40 45

Gly Ala His Leu Lys Gln Cys Asp Leu Leu Lys Leu Ser Arg Arg Gln
50 55 60

Lys Gln Leu Cys Arg Arg Glu Pro Gly Leu Ala Glu Thr Leu Arg Asp
65 70 75 80

Ala Ala His Leu Gly Leu Leu Glu Cys Gln Phe Gln Phe Arg His Glu
85 90 95

Arg Trp Asn Cys Ser Leu Glu Gly Arg Thr Gly Leu Leu Lys Arg Gly
100 105 110

Phe Lys Glu Thr Ala Phe Leu Tyr Ala Val Ser Ser Ala Ala Leu Thr
115 120 125
His Thr Leu Ala Arg Ala Cys Ser Ala Gly Arg Met Glu Arg Cys Thr
130 135 140
Cys Asp Asp Ser Pro Gly Leu Glu Ser Arg Gln Ala Trp Gln Trp Gly
145 150 155 160
Val Cys Gly Asp Asn Leu Lys Tyr Ser Thr Lys Phe Leu Ser Asn Phe
165 170 175
Leu Gly Ser Lys Arg Gly Asn Lys Asp Leu Arg Ala Arg Ala Asp Ala
180 185 190
His Asn Thr His Val Gly Ile Lys Ala Val Lys Ser Gly Leu Arg Thr
195 200 205
Thr Cys Lys Cys His Gly Val Ser Gly Ser Cys Ala Val Arg Thr Cys
210 215 220
Trp Lys Gln Leu Ser Pro Phe Arg Glu Thr Gly Gln Val Leu Lys Leu
225 230 235 240
Arg Tyr Asp Ser Ala Val Lys Val Ser Ser Ala Thr Asn Glu Ala Leu
245 250 255
Gly Arg Leu Glu Leu Trp Ala Pro Ala Arg Gln Gly Ser Leu Thr Lys
260 265 270
Gly Leu Ala Pro Arg Ser Gly Asp Leu Val Tyr Met Glu Asp Ser Pro
275 280 285
Ser Phe Cys Arg Pro Ser Lys Tyr Ser Pro Gly Thr Ala Gly Arg Val
290 295 300
Cys Ser Arg Glu Ala Ser Cys Ser Ser Leu Cys Cys Gly Arg Gly Tyr
305 310 315 320
Asp Thr Gln Ser Arg Leu Val Ala Phe Ser Cys His Cys Gln Val Gln
325 330 335
Trp Cys Cys Tyr Val Glu Cys Gln Gln Cys Val Gln Glu Glu Leu Val
340 345 350
Tyr Thr Cys Lys His
355

<210> 30
<211> 361
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 16 (Wnt-16) peptide sequence

<400> 30
Met Glu Arg His Pro Pro Met Gln Leu Thr Thr Cys Leu Arg Glu Thr
1 5 10 15

Leu Phe Thr Gly Ala Ser Gln Lys Thr Ser Leu Trp Trp Leu Gly Ile
 20 25 30
 Ala Ser Phe Gly Val Pro Glu Lys Leu Gly Cys Ala Asn Leu Pro Leu
 35 40 45
 Asn Ser Arg Gln Lys Glu Leu Cys Lys Arg Lys Pro Tyr Leu Leu Pro
 50 55 60
 Ser Ile Arg Glu Gly Ala Arg Leu Gly Ile Gln Glu Cys Arg Ser Gln
 65 70 75 80
 Phe Arg His Glu Arg Trp Asn Cys Met Ile Thr Ala Ala Ala Thr Thr
 85 90 95
 Ala Pro Met Gly Ala Ser Pro Leu Phe Gly Tyr Glu Leu Ser Ser Gly
 100 105 110
 Thr Lys Glu Thr Ala Phe Ile Tyr Ala Val Met Ala Ala Gly Leu Val
 115 120 125
 His Ser Val Thr Arg Ser Cys Ser Ala Gly Asn Met Thr Glu Cys Ser
 130 135 140
 Cys Asp Thr Thr Leu Gln Asn Gly Gly Ser Ala Ser Glu Gly Trp His
 145 150 155 160
 Trp Gly Gly Cys Ser Asp Asp Val Gln Tyr Gly Met Trp Phe Ser Arg
 165 170 175
 Lys Phe Leu Asp Phe Pro Ile Gly Asn Thr Thr Gly Lys Glu Asn Lys
 180 185 190
 Val Leu Leu Ala Met Asn Leu His Asn Asn Glu Ala Gly Arg Gln Ala
 195 200 205
 Val Ala Lys Leu Met Ser Val Asp Cys Arg Cys His Gly Val Ser Gly
 210 215 220
 Ser Cys Ala Val Lys Thr Cys Trp Lys Thr Met Ser Ser Phe Glu Lys
 225 230 235 240
 Ile Gly His Leu Leu Lys Asp Lys Tyr Glu Asn Ser Ile Gln Ile Ser
 245 250 255
 Asp Lys Ile Lys Arg Lys Met Arg Arg Arg Glu Lys Asp Gln Arg Lys
 260 265 270
 Ile Pro Ile His Lys Asp Asp Leu Leu Tyr Val Asn Lys Ser Pro Asn
 275 280 285
 Tyr Cys Val Glu Asp Lys Lys Leu Gly Ile Pro Gly Thr Gln Gly Arg
 290 295 300
 Glu Cys Asn Arg Thr Ser Glu Gly Ala Asp Gly Cys Asn Leu Leu Cys
 305 310 315 320
 Cys Gly Arg Gly Tyr Asn Thr His Val Val Arg His Val Glu Arg Cys
 325 330 335

Glu Cys Lys Phe Ile Trp Cys Cys Tyr Val Arg Cys Arg Arg Cys Glu
 340 345 350

Ser Met Thr Asp Val His Thr Cys Lys
 355 360

<210> 31
 <211> 318
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Frizzled-1 peptide sequence

<400> 31
 Met Ala Glu Glu Glu Ala Pro Lys Lys Ser Arg Ala Ala Gly Gly Gly
 1 5 10 15
 Ala Ser Trp Glu Leu Cys Ala Gly Ala Leu Ser Ala Arg Leu Ala Glu
 20 25 30
 Glu Gly Ser Gly Asp Ala Gly Gly Arg Arg Arg Pro Pro Val Asp Pro
 35 40 45
 Arg Arg Leu Ala Arg Gln Leu Leu Leu Leu Trp Leu Leu Glu Ala
 50 55 60
 Pro Leu Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Gly Pro Gly
 65 70 75 80
 Gln Gly Pro Gly Pro Gly Gln Gln Pro Pro Pro Pro Pro Pro Gln Gln
 85 90 95
 Gln Gln Ser Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Val Pro
 100 105 110
 Asp His Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile
 115 120 125
 Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln
 130 135 140
 Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val
 145 150 155 160
 Gln Cys Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro
 165 170 175
 Val Cys Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys
 180 185 190
 Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe
 195 200 205
 Gln Trp Pro Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala
 210 215 220
 Gly Glu Leu Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr
 225 230 235 240

Pro Ser Leu Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Gly
245 250 255

Gly Gly His Arg Gly Gly Phe Pro Gly Gly Ala Gly Ala Ser Glu Arg
260 265 270

Gly Lys Phe Ser Cys Pro Arg Ala Leu Lys Val Pro Ser Tyr Leu Asn
275 280 285

Tyr His Phe Leu Gly Glu Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr
290 295 300

Lys Val Tyr Gly Leu Met Tyr Phe Gly Pro Glu Glu Leu Arg
305 310 315

<210> 32

<211> 242

<212> PRT

<213> Homo sapiens

<220>

<223> human Frizzled-2 peptide sequence

<400> 32

Met Arg Pro Arg Ser Ala Leu Pro Arg Leu Leu Leu Pro Leu Leu Leu
1 5 10 15

Leu Pro Ala Ala Gly Pro Ala Gln Phe His Gly Glu Lys Gly Ile Ser
20 25 30

Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr
35 40 45

Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr
50 55 60

Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val
65 70 75 80

Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr
85 90 95

Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile Pro Pro Cys Arg Ser
100 105 110

Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe
115 120 125

Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu His Phe Pro Arg His
130 135 140

Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala
145 150 155 160

Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala
165 170 175

Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr
180 185 190

Ala Thr Leu Glu His Pro Phe His Cys Pro Arg Val Leu Lys Val Pro
 195 200 205

Ser Tyr Leu Ser Tyr Lys Phe Leu Gly Glu Arg Asp Cys Ala Ala Pro
 210 215 220

Cys Glu Pro Ala Arg Pro Asp Gly Ser Met Phe Phe Ser Gln Glu Glu
 225 230 235 240

Thr Arg

<210> 33
 <211> 200
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Frizzled-3 peptide sequence

<400> 33
 Met Ala Met Thr Trp Ile Val Phe Ser Leu Trp Pro Leu Thr Val Phe
 1 5 10 15
 Met Gly His Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
 20 25 30
 Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
 35 40 45
 Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
 50 55 60
 Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
 65 70 75 80
 Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
 85 90 95
 Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
 100 105 110
 Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
 115 120 125
 Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
 130 135 140
 Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
 145 150 155 160
 Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
 165 170 175
 Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
 180 185 190
 Tyr Phe Arg Arg Glu Glu Leu Ser
 195 200

<210> 34
 <211> 217
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Frizzled-4 peptide sequence

<400> 34
 Met Ala Trp Arg Gly Ala Gly Pro Ser Val Pro Gly Ala Pro Gly Gly
 1 5 10 15
 Val Gly Leu Ser Leu Gly Leu Leu Leu Gln Leu Leu Leu Leu Gly
 20 25 30
 Pro Ala Arg Gly Phe Gly Asp Glu Glu Arg Arg Cys Asp Pro Ile
 35 40 45
 Arg Ile Ser Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
 50 55 60
 Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
 65 70 75 80
 Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
 85 90 95
 Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
 100 105 110
 Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
 115 120 125
 Glu Pro Val Leu Lys Glu Phe Gly Phe Ala Trp Pro Glu Ser Leu Asn
 130 135 140
 Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
 145 150 155 160
 Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
 165 170 175
 Pro Gly Glu Glu Cys His Ser Val Gly Thr Asn Ser Asp Gln Tyr Ile
 180 185 190
 Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
 195 200 205
 Gly Leu Tyr Ser Arg Ser Ala Lys Glu
 210 215

<210> 35
 <211> 233
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Frizzled-5 peptide sequence

<400> 35

Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu Leu
1 5 10 15
Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val
20 25 30
Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
35 40 45
Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
50 55 60
Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
65 70 75 80
Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
85 90 95
Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
100 105 110
Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
115 120 125
Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
130 135 140
Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
145 150 155 160
Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
165 170 175
Ala Ser Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
180 185 190
Arg Glu Pro Phe Val Pro Ile Leu Lys Glu Ser His Pro Leu Tyr Asn
195 200 205
Lys Val Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys Tyr Gln
210 215 220
Pro Ser Phe Ser Ala Asp Glu Arg Thr
225 230

<210> 36

<211> 196

<212> PRT

<213> Homo sapiens

<220>

<223> human Frizzled-6 peptide sequence

<400> 36

Met Glu Met Phe Thr Phe Leu Leu Thr Cys Ile Phe Leu Pro Leu Leu
1 5 10 15
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
20 25 30

Met Lys Met Ala Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
 35 40 45
 Tyr Asp Gln Ser Ile Ala Ala Val Glu Met Glu His Phe Leu Pro Leu
 50 55 60
 Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Thr Phe Leu Cys Lys Ala
 65 70 75 80
 Phe Val Pro Thr Cys Ile Glu Gln Ile His Val Val Pro Pro Cys Arg
 85 90 95
 Lys Leu Cys Glu Lys Val Tyr Ser Asp Cys Lys Lys Leu Ile Asp Thr
 100 105 110
 Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asp Arg Leu Gln Tyr
 115 120 125
 Cys Asp Glu Thr Val Pro Val Thr Phe Asp Pro His Thr Glu Phe Leu
 130 135 140
 Gly Pro Gln Lys Lys Thr Glu Gln Val Gln Arg Asp Ile Gly Phe Trp
 145 150 155 160
 Cys Pro Arg His Leu Lys Thr Ser Gly Gly Gln Gly Tyr Lys Phe Leu
 165 170 175
 Gly Ile Asp Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
 180 185 190
 Asp Glu Leu Glu
 195

<210> 37
 <211> 251
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Frizzled-7 peptide sequence

<400> 37
 Met Arg Asp Pro Gly Ala Ala Val Pro Leu Ser Ser Leu Gly Phe Cys
 1 5 10 15
 Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Ser Ala Gly Ala Gly Ala
 20 25 30
 Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
 35 40 45
 Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
 50 55 60
 Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
 65 70 75 80
 Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
 85 90 95

Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
 100 105 110
 Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
 115 120 125
 Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
 130 135 140
 Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
 145 150 155 160
 Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Gly Pro
 165 170 175
 Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala
 180 185 190
 Leu Pro Pro Gly Ala Ser Asp Gly Lys Gly Arg Pro Ala Phe Pro Phe
 195 200 205
 Ser Cys Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe
 210 215 220
 Leu Gly Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn
 225 230 235 240
 Gly Leu Met Tyr Phe Lys Glu Glu Glu Arg Arg
 245 250

<210> 38
 <211> 275
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Frizzled-8 peptide sequence

<400> 38
 Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
 1 5 10 15
 Ala Leu Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
 20 25 30
 Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
 35 40 45
 Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
 50 55 60
 Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
 65 70 75 80
 Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
 85 90 95
 Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
 100 105 110

Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
 115 120 125
 Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
 130 135 140
 Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
 145 150 155 160
 Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Gly Glu Gln Pro
 165 170 175
 Pro Ser Gly Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His
 180 185 190
 Arg Gly Gly Gly Arg Gly Gly Gly Gly Gly Asp Ala Ala Ala Pro Pro
 195 200 205
 Ala Arg Gly Gly Gly Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly
 210 215 220
 Ala Ala Pro Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser
 225 230 235 240
 Val Ser Ser Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln
 245 250 255
 Ile Ala Asn Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp
 260 265 270
 Glu Arg Ala
 275

<210> 39
 <211> 229
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Frizzled-9 peptide sequence

<400> 39
 Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu Leu
 1 5 10 15
 Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg
 20 25 30
 Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg
 35 40 45
 Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr
 50 55 60
 Ser Gln Gly Glu Ala Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val
 65 70 75 80
 Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr
 85 90 95

Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg
100 105 110

Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln
115 120 125

Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr
130 135 140

Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr
145 150 155 160

Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
165 170 175

Pro Arg Pro Ala Arg Pro Pro Gly Asp Leu Gly Pro Gly Ala Gly Gly
180 185 190

Ser Gly Thr Cys Glu Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser
195 200 205

Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser
210 215 220

Arg Arg Asp Lys Asp
225

<210> 40
<211> 225
<212> PRT
<213> Homo sapiens

<220>
<223> human Frizzled-10 peptide sequence

<400> 40
Met Gln Arg Pro Gly Pro Arg Leu Trp Leu Val Leu Gln Val Met Gly
1 5 10 15

Ser Cys Ala Ala Ile Ser Ser Met Asp Met Glu Arg Pro Gly Asp Gly
20 25 30

Lys Cys Gln Pro Ile Glu Ile Pro Met Cys Lys Asp Ile Gly Tyr Asn
35 40 45

Met Thr Arg Met Pro Asn Leu Met Gly His Glu Asn Gln Arg Glu Ala
50 55 60

Ala Ile Gln Leu His Glu Phe Ala Pro Leu Val Glu Tyr Gly Cys His
65 70 75 80

Gly His Leu Arg Phe Phe Leu Cys Ser Leu Tyr Ala Pro Met Cys Thr
85 90 95

Glu Gln Val Ser Thr Pro Ile Pro Ala Cys Arg Val Met Cys Glu Gln
100 105 110

Ala Arg Leu Lys Cys Ser Pro Ile Met Glu Gln Phe Asn Phe Lys Trp
115 120 125

Pro Asp Ser Leu Asp Cys Arg Lys Leu Pro Asn Lys Asn Asp Pro Asn
 130 135 140
 Tyr Leu Cys Met Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr Arg
 145 150 155 160
 Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His Ser
 165 170 175
 Ala Gln Glu His Pro Leu Lys Asp Gly Gly Pro Gly Arg Gly Gly Cys
 180 185 190
 Asp Asn Pro Gly Lys Phe His His Val Glu Lys Ser Ala Ser Cys Ala
 195 200 205
 Pro Leu Cys Thr Pro Gly Val Asp Val Tyr Trp Ser Arg Glu Asp Lys
 210 215 220
 Arg
 225

<210> 41
 <211> 716
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Disheveled 3 (Dvl-3) amino acid sequence

<400> 41
 Met Gly Glu Thr Lys Ile Ile Tyr His Leu Asp Gly Gln Glu Thr Pro
 1 5 10 15
 Tyr Leu Val Lys Leu Pro Leu Pro Ala Glu Arg Val Thr Leu Ala Asp
 20 25 30
 Phe Lys Gly Val Leu Gln Arg Pro Ser Tyr Lys Phe Phe Phe Lys Ser
 35 40 45
 Met Asp Asp Asp Phe Gly Val Val Lys Glu Glu Ile Ser Asp Asp Asn
 50 55 60
 Ala Lys Leu Pro Cys Phe Asn Gly Arg Val Val Tyr Trp Leu Val Ser
 65 70 75 80
 Ala Glu Gly Ser His Pro Asp Pro Ala Pro Phe Cys Ala Asp Asn Pro
 85 90 95
 Ser Glu Leu Pro Pro Pro Met Glu Arg Thr Gly Gly Ile Gly Asp Ser
 100 105 110
 Arg Pro Pro Ser Phe His Pro His Ala Gly Gly Gly Ser Gln Glu Asn
 115 120 125
 Leu Asp Asn Asp Thr Glu Thr Asp Ser Leu Val Ser Ala Gln Arg Glu
 130 135 140
 Arg Pro Arg Arg Arg Asp Gly Pro Glu His Ala Thr Arg Leu Asn Gly
 145 150 155 160

Thr Ala Lys Gly Glu Arg Arg Arg Glu Pro Gly Gly Tyr Asp Ser Ser
 165 170 175
 Ser Thr Leu Met Ser Ser Glu Leu Glu Thr Thr Ser Phe Phe Asp Ser
 180 185 190
 Asp Glu Asp Asp Ser Thr Ser Arg Phe Ser Ser Ser Thr Glu Gln Ser
 195 200 205
 Ser Ala Ser Arg Leu Met Arg Arg His Lys Arg Arg Arg Arg Lys Gln
 210 215 220
 Lys Val Ser Arg Ile Glu Arg Ser Ser Ser Phe Ser Ser Ile Thr Asp
 225 230 235 240
 Ser Thr Met Ser Leu Asn Ile Ile Thr Val Thr Leu Asn Met Glu Lys
 245 250 255
 Tyr Asn Phe Leu Gly Ile Ser Ile Val Gly Gln Ser Asn Glu Arg Gly
 260 265 270
 Asp Gly Gly Ile Tyr Ile Gly Ser Ile Met Lys Gly Gly Ala Val Ala
 275 280 285
 Ala Asp Gly Arg Ile Glu Pro Gly Asp Met Leu Leu Gln Val Asn Glu
 290 295 300
 Ile Asn Phe Glu Asn Met Ser Asn Asp Asp Ala Val Arg Val Leu Arg
 305 310 315 320
 Glu Ile Val His Lys Pro Gly Pro Ile Thr Leu Thr Val Ala Lys Cys
 325 330 335
 Trp Asp Pro Ser Pro Arg Gly Cys Phe Thr Leu Pro Arg Ser Glu Pro
 340 345 350
 Ile Arg Pro Ile Asp Pro Ala Ala Trp Val Ser His Thr Ala Ala Met
 355 360 365
 Thr Gly Thr Phe Pro Ala Tyr Gly Met Ser Pro Ser Leu Ser Thr Ile
 370 375 380
 Thr Ser Thr Ser Ser Ser Ile Thr Ser Ser Ile Pro Asp Thr Glu Arg
 385 390 395 400
 Leu Asp Asp Phe His Leu Ser Ile His Ser Asp Met Ala Ala Ile Val
 405 410 415
 Lys Ala Met Ala Ser Pro Glu Ser Gly Leu Glu Val Arg Asp Arg Met
 420 425 430
 Trp Leu Lys Ile Thr Ile Pro Asn Ala Phe Ile Gly Ser Asp Val Val
 435 440 445
 Asp Trp Leu Tyr His Asn Val Glu Gly Phe Thr Asp Arg Arg Glu Ala
 450 455 460
 Arg Lys Tyr Ala Ser Asn Leu Leu Lys Ala Gly Phe Ile Arg His Thr
 465 470 475 480

Val Asn Lys Ile Thr Phe Ser Glu Gln Cys Tyr Tyr Ile Phe Gly Asp
 485 490 495
 Leu Cys Gly Asn Met Ala Asn Leu Ser Leu His Asp His Asp Gly Ser
 500 505 510
 Ser Gly Ala Ser Asp Gln Asp Thr Leu Ala Pro Leu Pro His Pro Gly
 515 520 525
 Ala Ala Pro Trp Pro Met Ala Phe Pro Tyr Gln Tyr Pro Pro Pro Pro
 530 535 540
 His Pro Tyr Asn Pro His Pro Gly Phe Pro Glu Leu Gly Tyr Ser Tyr
 545 550 555 560
 Gly Gly Gly Ser Ala Ser Ser Gln His Ser Glu Gly Ser Arg Ser Ser
 565 570 575
 Gly Ser Asn Arg Ser Gly Ser Asp Arg Arg Lys Glu Lys Asp Pro Lys
 580 585 590
 Ala Gly Asp Ser Lys Ser Gly Gly Ser Gly Ser Glu Ser Asp His Thr
 595 600 605
 Thr Arg Ser Ser Leu Arg Gly Pro Arg Glu Arg Ala Pro Ser Glu Arg
 610 615 620
 Ser Gly Pro Ala Ala Ser Glu His Ser His Arg Ser His His Ser Leu
 625 630 635 640
 Ala Ser Ser Leu Arg Ser His His Thr His Pro Ser Tyr Gly Pro Pro
 645 650 655
 Gly Val Pro Pro Leu Tyr Gly Pro Pro Met Leu Met Met Pro Pro Pro
 660 665 670
 Pro Ala Ala Met Gly Pro Pro Gly Ala Pro Pro Gly Arg Asp Leu Ala
 675 680 685
 Ser Val Pro Pro Glu Leu Thr Ala Ser Arg Gln Ser Phe Arg Met Ala
 690 695 700
 Met Gly Asn Pro Ser Glu Phe Phe Val Asp Val Met
 705 710 715

<210> 42
 <211> 670
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Disheveled 1 (Dvl-1) amino acid sequence

<400> 42
 Met Ala Glu Thr Lys Ile Ile Tyr His Met Asp Glu Glu Glu Thr Pro
 1 5 10 15
 Tyr Leu Val Lys Leu Pro Val Ala Pro Glu Arg Val Thr Leu Ala Asp
 20 25 30

Phe Lys Asn Val Leu Ser Asn Arg Pro Val His Ala Tyr Lys Phe Phe
35 40 45
Phe Lys Ser Met Asp Gln Asp Phe Gly Val Val Lys Glu Glu Ile Phe
50 55 60
Asp Asp Asn Ala Lys Leu Pro Cys Phe Asn Gly Arg Val Val Ser Trp
65 70 75 80
Leu Val Leu Ala Glu Gly Ala His Ser Asp Ala Gly Ser Gln Gly Thr
85 90 95
Asp Ser His Thr Asp Leu Pro Pro Pro Leu Glu Arg Thr Gly Gly Ile
100 105 110
Gly Asp Ser Arg Pro Pro Ser Phe His Pro Asn Val Ala Ser Ser Arg
115 120 125
Asp Gly Met Asp Asn Glu Thr Gly Thr Glu Ser Met Val Ser His Arg
130 135 140
Arg Glu Arg Ala Arg Arg Arg Asn Arg Glu Glu Ala Ala Arg Thr Asn
145 150 155 160
Gly His Pro Arg Gly Asp Arg Arg Arg Asp Val Gly Leu Pro Pro Asp
165 170 175
Ser Ala Ser Thr Ala Leu Ser Ser Glu Leu Glu Ser Ser Ser Phe Val
180 185 190
Asp Ser Asp Glu Asp Gly Ser Thr Ser Arg Leu Ser Ser Ser Thr Glu
195 200 205
Gln Ser Thr Ser Ser Arg Leu Ile Arg Lys His Lys Arg Arg Arg Arg
210 215 220
Lys Gln Arg Leu Arg Gln Ala Asp Arg Ala Ser Ser Phe Ser Ser Ile
225 230 235 240
Thr Asp Ser Thr Met Ser Leu Asn Ile Val Thr Val Thr Leu Asn Met
245 250 255
Glu Arg His His Phe Leu Gly Ile Ser Ile Val Gly Gln Ser Asn Asp
260 265 270
Arg Gly Asp Gly Gly Ile Tyr Ile Gly Ser Ile Met Lys Gly Gly Ala
275 280 285
Val Ala Ala Asp Gly Arg Ile Glu Pro Gly Asp Met Leu Leu Gln Val
290 295 300
Asn Asp Val Asn Phe Glu Asn Met Ser Asn Asp Asp Ala Val Arg Val
305 310 315 320
Leu Arg Glu Ile Val Ser Gln Thr Gly Pro Ile Ser Leu Thr Val Ala
325 330 335
Lys Cys Trp Asp Pro Thr Pro Arg Ser Tyr Phe Thr Val Pro Arg Ala
340 345 350

Asp Pro Val Arg Pro Ile Asp Pro Ala Ala Trp Leu Ser His Thr Ala
 355 360 365
 Ala Leu Thr Gly Ala Leu Pro Arg Tyr Glu Leu Glu Glu Ala Pro Leu
 370 375 380
 Thr Val Lys Ser Asp Met Ser Ala Val Val Arg Val Met Gln Leu Pro
 385 390 395 400
 Asp Ser Gly Leu Glu Ile Arg Asp Arg Met Trp Leu Lys Ile Thr Ile
 405 410 415
 Ala Asn Ala Val Ile Gly Ala Asp Val Val Asp Trp Leu Tyr Thr His
 420 425 430
 Val Glu Gly Phe Lys Glu Arg Arg Glu Ala Arg Lys Tyr Ala Ser Ser
 435 440 445
 Leu Leu Lys His Gly Phe Leu Arg His Thr Val Asn Lys Ile Thr Phe
 450 455 460
 Ser Glu Gln Cys Tyr Tyr Val Phe Gly Asp Leu Cys Ser Asn Leu Ala
 465 470 475 480
 Thr Leu Asn Leu Asn Ser Gly Ser Ser Gly Thr Ser Asp Gln Asp Thr
 485 490 495
 Leu Ala Pro Leu Pro His Pro Ala Ala Pro Trp Pro Leu Gly Gln Gly
 500 505 510
 Tyr Pro Tyr Gln Tyr Pro Gly Pro Pro Pro Cys Phe Pro Pro Ala Tyr
 515 520 525
 Gln Asp Pro Gly Phe Ser Tyr Gly Ser Gly Ser Thr Gly Ser Gln Gln
 530 535 540
 Ser Glu Gly Ser Lys Ser Ser Gly Ser Thr Arg Ser Ser Arg Arg Ala
 545 550 555 560
 Pro Gly Arg Glu Lys Glu Arg Arg Ala Ala Gly Ala Gly Gly Ser Gly
 565 570 575
 Ser Glu Ser Asp His Thr Ala Pro Ser Gly Val Gly Ser Ser Trp Arg
 580 585 590
 Glu Arg Pro Ala Gly Gln Leu Ser Arg Gly Ser Ser Pro Arg Ser Gln
 595 600 605
 Ala Ser Ala Thr Ala Pro Gly Leu Pro Pro Pro His Pro Thr Thr Lys
 610 615 620
 Ala Tyr Thr Val Val Gly Gly Pro Pro Gly Gly Pro Pro Val Arg Glu
 625 630 635 640
 Leu Ala Ala Val Pro Glu Leu Thr Gly Ser Arg Gln Ser Phe Gln
 645 650 655
 Lys Ala Met Gly Asn Pro Cys Glu Phe Phe Val Asp Ile Met
 660 665 670

<210> 43
 <211> 736
 <212> PRT
 <213> Homo sapiens

<220>
 <223> human Disheveled 2 (Dvl-2) amino acid sequence

<400> 43
 Met Ala Gly Ser Ser Thr Gly.Gly Gly Gly Val Gly Glu Thr Lys Val
 1 5 10 15
 Ile Tyr His Leu Asp Glu Glu Glu Thr Pro Tyr Leu Val Lys Ile Pro
 20 25 30
 Val Pro Ala Glu Arg Ile Thr Leu Gly Asp Phe Lys Ser Val Leu Gln
 35 40 45
 Arg Pro Ala Gly Ala Lys Tyr Phe Phe Lys Ser Met Asp Gln Asp Phe
 50 55 60
 Gly Val Val Lys Glu Glu Ile Ser Asp Asp Asn Ala Arg Leu Pro Cys
 65 70 75 80
 Phe Asn Gly Arg Val Val Ser Trp Leu Val Ser Ser Asp Asn Pro Gln
 85 90 95
 Pro Glu Met Ala Pro Pro Val His Glu Pro Arg Ala Glu Leu Ala Pro
 100 105 110
 Pro Ala Pro Pro Leu Pro Pro Leu Pro Pro Glu Arg Thr Ser Gly Ile
 115 120 125
 Gly Asp Ser Arg Pro Pro Ser Phe His Pro Asn Val Ser Ser Ser His
 130 135 140
 Glu Asn Leu Glu Pro Glu Thr Glu Thr Glu Ser Val Val Ser Leu Arg
 145 150 155 160
 Arg Glu Arg Pro Arg Arg Arg Asp Ser Ser Glu His Gly Ala Gly Gly
 165 170 175
 His Arg Thr Gly Gly Pro Ser Arg Leu Glu Arg His Leu Ala Gly Tyr
 180 185 190
 Glu Ser Ser Ser Thr Leu Met Thr Ser Glu Leu Glu Ser Thr Ser Leu
 195 200 205
 Gly Asp Ser Asp Glu Glu Asp Thr Met Ser Arg Phe Ser Ser Ser Thr
 210 215 220
 Glu Gln Ser Ser Ala Ser Arg Leu Leu Lys Arg His Arg Arg Arg Arg
 225 230 235 240
 Lys Gln Arg Pro Pro Arg Leu Glu Arg Thr Ser Ser Phe Ser Ser Val
 245 250 255
 Thr Asp Ser Thr Met Ser Leu Asn Ile Ile Thr Val Thr Leu Asn Met
 260 265 270

Glu Lys Tyr Asn Phe Leu Gly Ile Ser Ile Val Gly Gln Ser Asn Glu
 275 280 285
 Arg Gly Asp Gly Gly Ile Tyr Ile Gly Ser Ile Met Lys Gly Gly Ala
 290 295 300
 Val Ala Ala Asp Gly Arg Ile Glu Pro Gly Asp Met Leu Leu Gln Val
 305 310 315 320
 Asn Asp Met Asn Phe Glu Asn Met Ser Asn Asp Asp Ala Val Arg Val
 325 330 335
 Leu Arg Asp Ile Val His Lys Pro Gly Pro Ile Val Leu Thr Val Ala
 340 345 350
 Lys Cys Trp Asp Pro Ser Pro Gln Ala Tyr Phe Thr Leu Pro Arg Asn
 355 360 365
 Glu Pro Ile Gln Pro Ile Asp Pro Ala Ala Trp Val Ser His Ser Ala
 370 375 380
 Ala Leu Thr Gly Thr Phe Pro Ala Tyr Pro Gly Ser Ser Ser Met Ser
 385 390 395 400
 Thr Ile Thr Ser Gly Ser Ser Leu Pro Asp Gly Cys Glu Gly Arg Gly
 405 410 415
 Leu Ser Val His Thr Asp Met Ala Ser Val Thr Lys Ala Met Ala Ala
 420 425 430
 Pro Glu Ser Gly Leu Glu Val Arg Asp Arg Met Trp Leu Lys Ile Thr
 435 440 445
 Ile Pro Asn Ala Phe Leu Gly Ser Asp Val Val Asp Trp Leu Tyr His
 450 455 460
 His Val Glu Gly Phe Pro Glu Arg Arg Glu Ala Arg Lys Tyr Ala Ser
 465 470 475 480
 Gly Leu Leu Lys Ala Gly Leu Ile Arg His Thr Val Asn Lys Ile Thr
 485 490 495
 Phe Ser Glu Gln Cys Tyr Tyr Val Phe Gly Asp Leu Ser Gly Gly Cys
 500 505 510
 Glu Ser Tyr Leu Val Asn Leu Ser Leu Asn Asp Asn Asp Gly Ser Ser
 515 520 525
 Gly Ala Ser Asp Gln Asp Thr Leu Ala Pro Leu Pro Gly Ala Thr Pro
 530 535 540
 Trp Pro Leu Leu Pro Thr Phe Ser Tyr Gln Tyr Pro Ala Pro His Pro
 545 550 555 560
 Tyr Ser Pro Gln Pro Pro Pro Tyr His Glu Leu Ser Ser Tyr Thr Tyr
 565 570 575
 Gly Gly Gly Ser Ala Ser Ser Gln His Ser Glu Gly Ser Arg Ser Ser
 580 585 590

Gly Ser Thr Arg Ser Asp Gly Gly Ala Gly Arg Thr Gly Arg Pro Glu
 595 600 605
 Glu Arg Ala Pro Glu Ser Lys Ser Gly Ser Gly Ser Glu Ser Glu Pro
 610 615 620
 Ser Ser Arg Gly Gly Ser Leu Arg Arg Gly Gly Glu Ala Ser Gly Thr
 625 630 635 640
 Ser Asp Gly Gly Pro Pro Pro Ser Arg Gly Ser Thr Gly Gly Ala Pro
 645 650 655
 Asn Leu Arg Ala His Pro Gly Leu His Pro Tyr Gly Pro Pro Pro Gly
 660 665 670
 Met Ala Leu Pro Tyr Asn Pro Met Met Val Val Met Met Pro Pro Pro
 675 680 685
 Pro Pro Pro Val Pro Pro Ala Val Gln Pro Pro Gly Ala Pro Pro Val
 690 695 700
 Arg Asp Leu Gly Ser Val Pro Pro Glu Leu Thr Ala Ser Arg Gln Ser
 705 710 715 720
 Phe His Met Ala Met Gly Asn Pro Ser Glu Phe Phe Val Asp Val Met
 725 730 735

<210> 44
 <211> 108
 <212> DNA
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt1 or Wnt2 monoclonal
 antibody

<220>
 <223> ly21 Clone #1 anti-Wnt-1 and ly23w21kRs anti-Wnt-2
 kappa light chain FR1 and CDR1 regions

<220>
 <221> CDS
 <222> (1)..(108)

<400> 44
 gac att gtg ctg aca cag tct cct gct tcc tta gct gta tct ctg ggg 48
 Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
 1 5 10 15
 cag agg gcc acc atc tca tac agg gcc agc aaa agt gtc agt aca tct 96
 Gln Arg Ala Thr Ile Ser Tyr Arg Ala Ser Lys Ser Val Ser Thr Ser
 20 25 30
 ggc tat agt tat 108
 Gly Tyr Ser Tyr
 35

<210> 45
 <211> 36
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt1 or Wnt2 monoclonal
 antibody

<220>
 <223> ly21 Clone #1 anti-Wnt-1 and ly23w21kRs anti-Wnt-2
 kappa light chain FR1 and CDR1 regions

<400> 45
 Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
 1 5 10 15
 Gln Arg Ala Thr Ile Ser Tyr Arg Ala Ser Lys Ser Val Ser Thr Ser
 20 25 30
 Gly Tyr Ser Tyr
 35

<210> 46
 <211> 60
 <212> DNA
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt1 or Wnt2 monoclonal
 antibody

<220>
 <223> ly21 Clone #1 and ly22W11kRs Clone #2 anti-Wnt-1
 and ly23w21kRs anti-Wnt-2 kappa light chain FR2
 and CDR2 regions

<220>
 <221> CDS
 <222> (1)..(60)

<400> 46
 atg cac tgg aac caa cag aaa cca gga cag cca ccc aga ctc ctc atc 48
 Met His Trp Asn Gln Gln Lys Pro Gly Gln Pro Pro Arg Leu Leu Ile
 1 5 10 15
 tat ctt gta tcc 60
 Tyr Leu Val Ser
 20

<210> 47
 <211> 20
 <212> PRT
 <213> Unknown Organism

```

<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt1 or Wnt2 monoclonal
        antibody

<220>
<223> ly21 Clone #1 and ly22W1kRs Clone #2 anti-Wnt-1
        and ly23w21kRs anti-Wnt-2 kappa light chain FR2
        and CDR2 regions

<400> 47
Met His Trp Asn Gln Gln Lys Pro Gly Gln Pro Pro Arg Leu Leu Ile
  1             5             10             15

Tyr Leu Val Ser
      20

<210> 48
<211> 21
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly21 Clone #1 and ly22W1kRs Clone #2 anti-Wnt-1
        kappa light chain FR3 region

<220>
<221> CDS
<222> (1)..(21)

<400> 48
aac cta gaa tct ggg gtc cct
Asn Leu Glu Ser Gly Val Pro
  1             5

<210> 49
<211> 7
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly21 Clone #1 and ly22W1kRs Clone #2 anti-Wnt-1
        kappa light chain FR3 region

<400> 49
Asn Leu Glu Ser Gly Val Pro
  1             5

```

21

<210> 50
<211> 21
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly21 Clone #1 and ly22W11kRs Clone #2 anti-Wnt-1
kappa light chain FR3 region

<220>
<221> CDS
<222> (1)..(21)

<400> 50
gcc agg ttc agt ggc agt ggg
Ala Arg Phe Ser Gly Ser Gly
1 5

21

<210> 51
<211> 7
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly21 Clone #1 and ly22W11kRs Clone #2 anti-Wnt-1
kappa light chain FR3 region

<400> 51
Ala Arg Phe Ser Gly Ser Gly
1 5

<210> 52
<211> 120
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly21 Clone #1 anti-Wnt-1 kappa light chain FR3 and
CDR3 regions

<220>
<221> CDS
<222> (1)..(111)

```

<400> 52
tct ggg aca gac ttc acc ctc aac atc cat cct gtg gag gag gag gat 48
Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp
  1           5           10           15

gct gca acc tat tac tgt cag cac att agg gag ctt aca cgt tcg gag 96
Ala Ala Thr Tyr Tyr Cys Gln His Ile Arg Glu Leu Thr Arg Ser Glu
          20           25           30

ggg gga cca agc tga aaaaacggg 120
Gly Gly Pro Ser
          35

```

```

<210> 53
<211> 36
<212> PRT
<213> Unknown Organism

```

```

<220>
<223> Description of Unknown Organism:hybridoma cell
      line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly21 Clone #1 anti-Wnt-1 kappa light chain FR3 and
      CDR3 regions

```

```

<400> 53
Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp
  1           5           10           15
Ala Ala Thr Tyr Tyr Cys Gln His Ile Arg Glu Leu Thr Arg Ser Glu
          20           25           30
Gly Gly Pro Ser
          35

```

```

<210> 54
<211> 108
<212> DNA
<213> Unknown Organism

```

```

<220>
<223> Description of Unknown Organism:hybridoma cell
      line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly22W1lkRs Clone #2 anti-Wnt-1 kappa light chain
      FR1 and CDR1 regions

```

```

<220>
<221> CDS
<222> (1)..(108)

```

```

<400> 54
gac att gtg gtg aca cag tct cct gct tcc tta gct gta tct ctg ggg 48
Asp Ile Val Val Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
  1           5           10           15

```

cag agg gcc acc atc tca tac agg gcc agc aaa agt gtc agt aca tct 96
 Gln Arg Ala Thr Ile Ser Tyr Arg Ala Ser Lys Ser Val Ser Thr Ser
 20 25 30

ggc tat agt tat 108
 Gly Tyr Ser Tyr
 35

<210> 55
 <211> 36
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt1 monoclonal antibody

<220>
 <223> ly22W1kRs Clone #2 anti-Wnt-1 kappa light chain
 FR1 and CDR1 regions

<400> 55
 Asp Ile Val Val Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
 1 5 10 15
 Gln Arg Ala Thr Ile Ser Tyr Arg Ala Ser Lys Ser Val Ser Thr Ser
 20 25 30

Gly Tyr Ser Tyr
 35

<210> 56
 <211> 123
 <212> DNA
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt1 monoclonal antibody

<220>
 <223> ly22W1kRs Clone #2 anti-Wnt-1 kappa light chain
 FR3 and CDR3 regions

<220>
 <221> CDS
 <222> (1)..(114)
 <220>
 <221> modified_base
 <222> (93)
 <223> n = g, a, c or t

<400> 56
 tct ggg aca gac ttc acc ctc aac atc cat cct gtg gag gag gag gat 48
 Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp
 1 5 10 15

gct gca acc tat tac tgt cag cac att agg gag ctt agc acg ttn cgg 96
 Ala Ala Thr Tyr Tyr Cys Gln His Ile Arg Glu Leu Ser Thr Xaa Arg
 20 25 30

agg ggg gag cca agc tga aataaacgg 123
 Arg Gly Glu Pro Ser
 35

<210> 57
 <211> 37
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt1 monoclonal antibody

<220>
 <223> ly22W1kRs Clone #2 anti-Wnt-1 kappa light chain
 FR3 and CDR3 regions

<220>
 <221> MOD_RES
 <222> (31)
 <223> Xaa = Phe or Leu

<400> 57
 Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp
 1 5 10 15
 Ala Ala Thr Tyr Tyr Cys Gln His Ile Arg Glu Leu Ser Thr Xaa Arg
 20 25 30
 Arg Gly Glu Pro Ser
 35

<210> 58
 <211> 21
 <212> DNA
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt2 monoclonal antibody

<220>
 <223> ly23w21kRs anti-Wnt-2 kappa light chain FR3 region

<220>
 <221> CDS
 <222> (1)..(21)

<400> 58
 aac cta gaa tct agg agg tca 21
 Asn Leu Glu Ser Arg Arg Ser
 1 5

<210> 59
<211> 7
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly23w21kRs anti-Wnt-2 kappa light chain FR3 region

<400> 59
Asn Leu Glu Ser Arg Arg Ser
1 5

<210> 60
<211> 21
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly23w21kRs anti-Wnt-2 kappa light chain FR3 region

<220>
<221> CDS
<222> (1)..(21)

<400> 60
cct gcc agg ttc agt ggt cag
Pro Ala Arg Phe Ser Gly Gln
1 5

21

<210> 61
<211> 7
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly23w21kRs anti-Wnt-2 kappa light chain FR3 region

<400> 61
Pro Ala Arg Phe Ser Gly Gln
1 5

<210> 62
<211> 134
<212> DNA
<213> Unknown Organism

```

<220>
<223> Description of Unknown Organism:hybridoma cell
      line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly23w21kRs anti-Wnt-2 kappa light chain CDR3
      region

<220>
<221> CDS
<222> (1)..(126)

<220>
<221> modified_base
<222> (76)
<223> n = g, a, c or t

<400> 62
tgg tgt ctg gtg tac aga ctt cac cct cag aca tcc atg cct gtc gga 48
Trp Cys Leu Val Tyr Arg Leu His Pro Gln Thr Ser Met Pro Val Gly
  1             5             10             15

gga gga gga tgc ctg caa cct gat tat ntg tgc agc aca tta ggg agc 96
Gly Gly Gly Cys Leu Gln Pro Asp Tyr Xaa Cys Ser Thr Leu Gly Ser
      20             25             30

tta cac gtt acg gag ggg gga cca agc tga aaaaacgg 134
Leu His Val Thr Glu Gly Gly Pro Ser
      35             40

<210> 63
<211> 41
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
      line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly23w21kRs anti-Wnt-2 kappa light chain CDR3
      region

<220>
<221> MOD_RES
<222> (26)
<223> Xaa = Val, Met or Leu

<400> 63
Trp Cys Leu Val Tyr Arg Leu His Pro Gln Thr Ser Met Pro Val Gly
  1             5             10             15
Gly Gly Gly Cys Leu Gln Pro Asp Tyr Xaa Cys Ser Thr Leu Gly Ser
      20             25             30
Leu His Val Thr Glu Gly Gly Pro Ser
      35             40

```

<210> 64
<211> 27
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt1 monoclonal antibody

<220>
<223> anti-Wnt-1 IgG1 heavy chain

<220>
<221> modified_base
<222> (1)..(27)
<223> n = g, a, c or t

<400> 64
ngttncagcc tgnaggagtc nggtgga

27

<210> 65
<211> 72
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt1 monoclonal antibody

<220>
<223> anti-Wnt-1 IgG1 heavy chain

<400> 65
ggattggtgc agcctaaagg gtcattgaaa ctctcatgtg cagcctctgg attcactttt 60
aatacctacg cc 72

<210> 66
<211> 102
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
line producing anti-human Wnt1 monoclonal antibody

<220>
<223> anti-Wnt-1 IgG1 heavy chain

<400> 66
atgaactggg tccgccaggc tccaggaaag ggtttggaat gggttgctcg cataagaact 60
agacgttata attctgcaac atattatgcc gattctgtga aa 102

<210> 67
<211> 100
<212> DNA
<213> Unknown Organism

```

<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt1 monoclonal antibody

<220>
<223> anti-Wnt-1 IgG1 heavy chain

<400> 67
gacaggttca ccattctccag agatgattca cggggcatgc tctatctgca aatgaacaac 60
ttgaaaactg aggacacagc catgtattac tgtgtgaggc                               100

<210> 68
<211> 11
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR1 region

<220>
<221> modified_base
<222> (5)
<223> n = g, a, c or t

<400> 68
agtcnggacc t                                                                11

<210> 69
<211> 72
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR1 and
        CDR1 regions

<220>
<221> CDS
<222> (1)..(72)

<400> 69
gag ctg gtg aag cct ggg gct tca gtg aag atg tcc tgc aag gct tct 48
Glu Leu Val Lys Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser
  1             5             10             15

gga tac aca ttc act gac tat gtt
Gly Tyr Thr Phe Thr Asp Tyr Val
      20
gga tac aca ttc act gac tat gtt
Gly Tyr Thr Phe Thr Asp Tyr Val
      20

```


<210> 70
 <211> 24
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt2 monoclonal antibody

<220>
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR1 and
 CDR1 regions

<400> 70
 Glu Leu Val Lys Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser
 1 5 10 15
 Gly Tyr Thr Phe Thr Asp Tyr Val
 20

<210> 71
 <211> 75
 <212> DNA
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt2 monoclonal antibody

<220>
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR2 and
 CDR2 regions

<220>
 <221> CDS
 <222> (1)..(75)

<400> 71
 tta agc tgg gtg aag cag aga act gga cag ggc ctt gag tgg att gga 48
 Leu Ser Trp Val Lys Gln Arg Thr Gly Gln Gly Leu Glu Trp Ile Gly
 1 5 10 15
 gag att tat cct gga tat ggt agt act 75
 Glu Ile Tyr Pro Gly Tyr Gly Ser Thr
 20 25

<210> 72
 <211> 25
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt2 monoclonal antibody

<220>
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR2 and
 CDR2 regions

<400> 72
 Leu Ser Trp Val Lys Gln Arg Thr Gly Gln Gly Leu Glu Trp Ile Gly
 1 5 10 15

Glu Ile Tyr Pro Gly Tyr Gly Ser Thr
 20 25

<210> 73
 <211> 21
 <212> DNA
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt2 monoclonal antibody

<220>
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR3 region

<220>
 <221> CDS
 <222> (1)..(21)

<400> 73
 tac tac aat gag aag ttc aag
 Tyr Tyr Asn Glu Lys Phe Lys
 1 5

21

<210> 74
 <211> 7
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt2 monoclonal antibody

<220>
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR3 region

<400> 74
 Tyr Tyr Asn Glu Lys Phe Lys
 1 5

<210> 75
 <211> 156
 <212> DNA
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism:hybridoma cell
 line producing anti-human Wnt2 monoclonal antibody

<220>
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR3 and
 CDR3 regions

```

<220>
<221> CDS
<222> (1)..(156)

<220>
<221> modified_base
<222> (1)..(156)
<223> n = g, a, c or t

<400> 75
ggc aag gcc aca ctg act gct gac aaa tcc tcc aac aca gcc tac atg 48
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr Ala Tyr Met
  1             5             10             15

cag ctc agc agc ctg aca tct gag gac tct gcg gtc tat ttc tgt gca 96
Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala
      20             25             30

aga tgg ggg gat tgc ttt tgc tta tct ggg gcc aag gga nct ctg gtc 144
Arg Trp Gly Asp Cys Phe Cys Leu Ser Gly Ala Lys Gly Xaa Leu Val
      35             40             45

anc tgt ctc tgc 156
Xaa Cys Leu Cys
  50

<210> 76
<211> 52
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
      line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR3 and
      CDR3 regions

<220>
<221> MOD_RES
<222> (46)
<223> Xaa = Ala, Thr, Pro or Ser

<220>
<221> MOD_RES
<222> (49)
<223> Xaa = Ser, Asn, Thr or Ile

<400> 76
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr Ala Tyr Met
  1             5             10             15

Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala
      20             25             30

```

Arg Trp Gly Asp Cys Phe Cys Leu Ser Gly Ala Lys Gly Xaa Leu Val
 35 40 45

Xaa Cys Leu Cys
 50

<210> 77
 <211> 12
 <212> PRT
 <213> Homo sapiens

<220>
 <223> amino acids 201-212 of human Wnt-1

<400> 77
 His Asn Asn Glu Ala Gly Arg Thr Thr Val Phe Ser
 1 5 10

<210> 78
 <211> 14
 <212> PRT
 <213> Homo sapiens

<220>
 <223> amino acids 39-52 of human Wnt-1

<400> 78
 Asn Val Ala Ser Ser Thr Asn Leu Leu Thr Asp Ser Lys Ser
 1 5 10

<210> 79
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:peptide linker

<400> 79
 Gly Gly Gly Gly Ser
 1 5

<210> 80
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:synthetic
 peptide corresponding to amino acid 201-212 of
 human Wnt-1

<220>
 <221> MOD_RES
 <222> (1)
 <223> Xaa = N-acetyl His

```

<220>
<221> MOD_RES
<222> (12)
<223> Xaa = serinamide

<400> 80
Xaa Asn Asn Glu Ala Gly Arg Thr Thr Val Phe Xaa
  1                      5                      10

```